# Millennium Ecosystem Assessment

## LESSONS LEARNED

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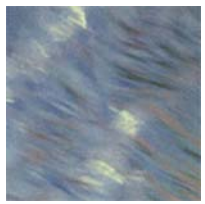
# Millennium Ecosystem Assessment

An international scientific assessment of the consequences of ecosystem changes for human well-being:

- Findings were released in early 2005
- Modeled on the Intergovernmental Panel on Climate Change (IPCC)
- Providing information requested by:
  - Convention on Biological Diversity (CBD), Desertification (CCD), Ramsar, Migratory Species (CMS)
  - other partners including the private sector and civil society
- With the goals of:
  - Meeting decision-makers' needs for information
  - building capacity

# The MA focuses on:





- The consequences of changes in ecosystems for human well being
  - Ecosystem services
- The consequences of changes in ecosystems for other life on earth
- MA is a critical assessment of the state of scientific knowledge – not a research project
- MA reports are policy relevant, but not policy prescriptive

# Ecosystem Services

## The benefits people obtain from ecosystems

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

**Supporting**

Services necessary for production of other ecosystem services

- Soil formation
- Nutrient cycling
- Primary production

# MA Components

- Conceptual Framework

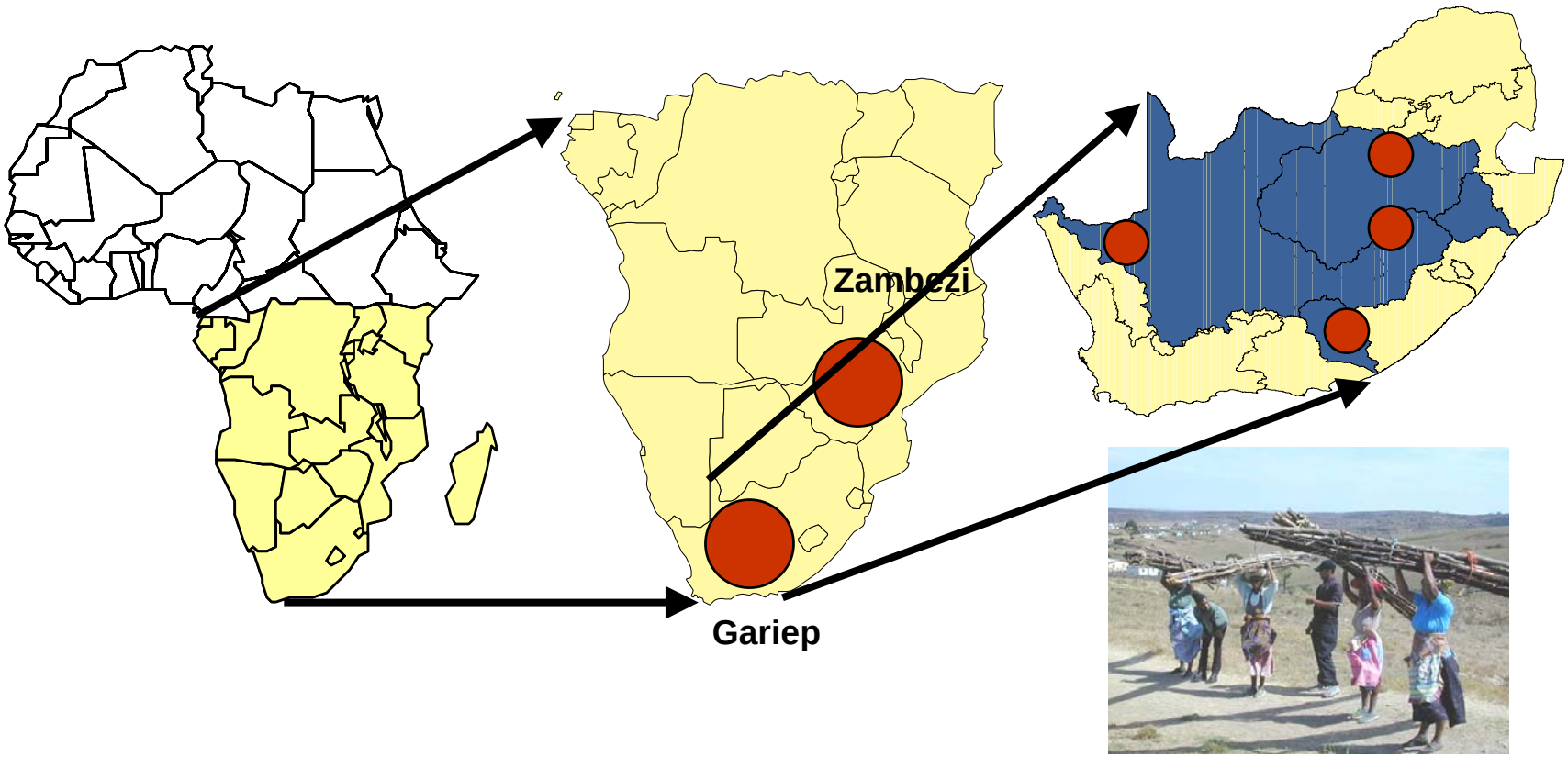
- Condition & Trends
- Scenarios
- Responses

- Subglobal Assessments

# MA is a Multi-scale Assessment

## e.g., Southern Africa Millennium Assessment

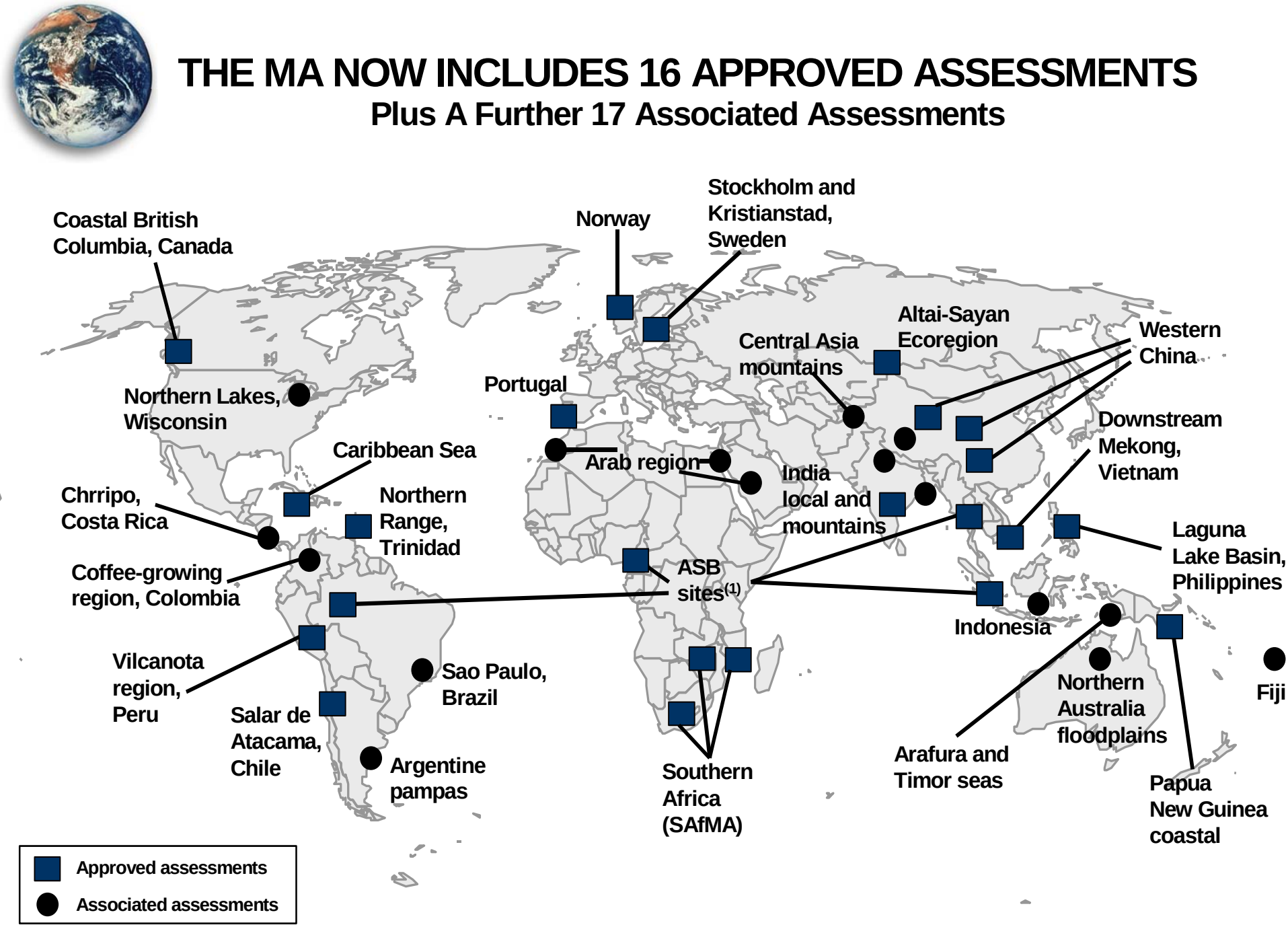
**SADC region** | **drainage basins** | **Local assessments**




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

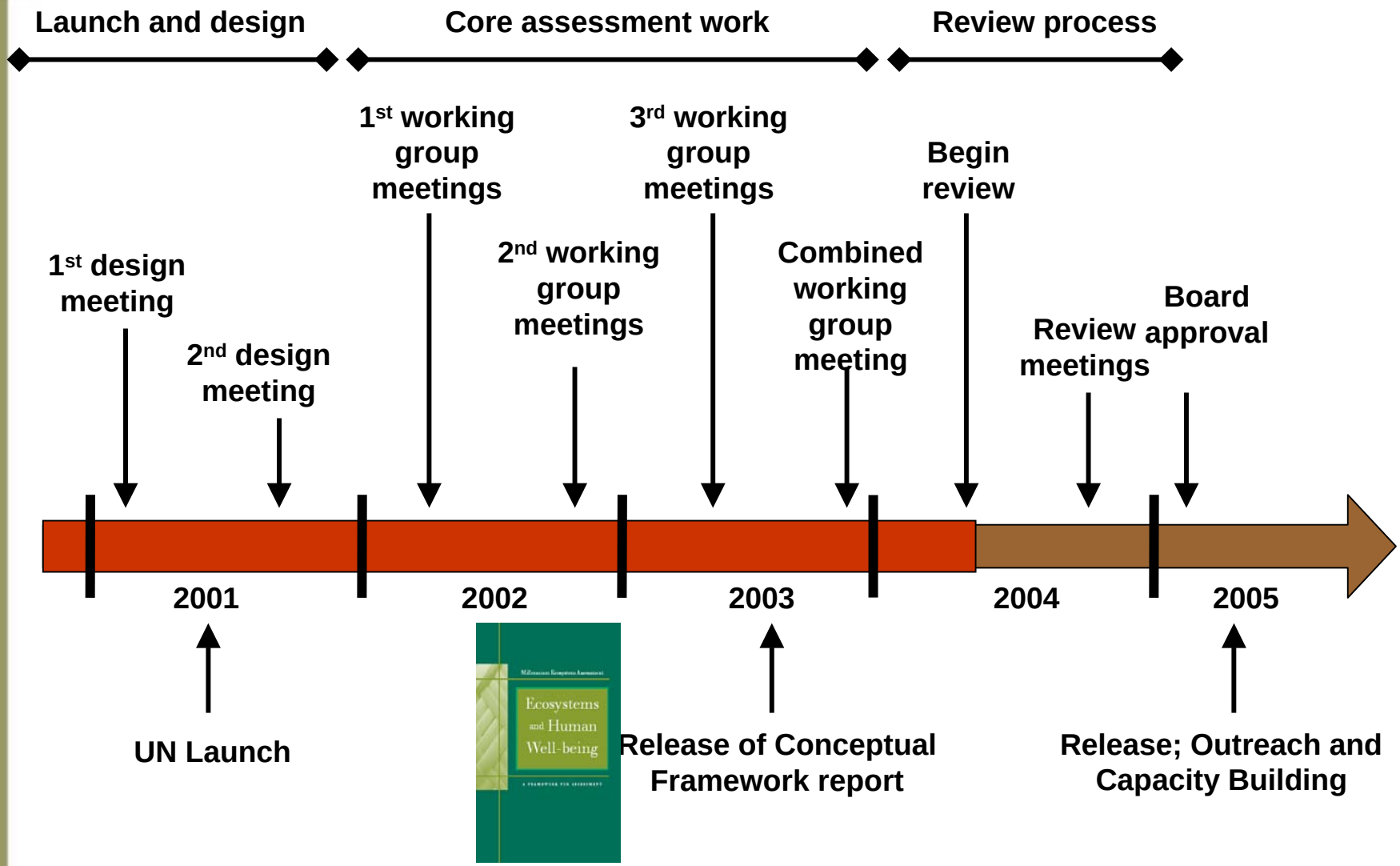
# THE MA NOW INCLUDES 16 APPROVED ASSESSMENTS

## Plus A Further 17 Associated Assessments




(1) ASB: Alternatives to Slash and Burn – multiple local sites in

# Timeline


Launch and design
Core assessment work
Review process
1st design meeting
2nd design meeting
1st working group meetings
2nd working group meetings
3rd working group meetings
Combined working group meeting
Begin review
Board Review approval meetings
2001
2002
2003
2004
2005
UN Launch
Ecosystems and Human Well-being
Release of Conceptual Framework report
Release; Outreach and Capacity Building

# MA Outputs

- Technical Assessment Reports (300-800 pages ea.) and Summaries for Decision-makers (SDMs)
  - Sub-global Assessment
  - Condition/Trends Assessment
  - Scenario Assessment
  - Response Options Assessment
  - Summary Volume (SDMs of 4 reports) Biodiversity,, Health, Food, Coastal & Marine, Water, Desertification
- Core datasets available
- On-line data catalog and exploration tool
- Active outreach to conventions and private sector

# MA DATA

CURRENT SYSTEM

- Overall - MA does not generate data but uses existing data
- CORE DATA set , primarily terrestrial based available for downloading from the MA website
- ON_LINE GIS that can be used to map the core data as well as downloading the ecosystem polygons
- META DATABASE of global datasets that link to the source web page, some regional datasets included

- POST MA
- April 2004 - first meeting to discuss archiving datasets, models and the data used in the models (where possible)
- 2 - 3 sites have indicated willingness to archive and work has begun

# Lesson Learned

- Including future scenarios and responses added value to the data that was used
- Sub-global assessments at different scales were useful, especially when they were embedded in other regional initiatives
- Difficulty to keep it policy relevant and exclude policy prescriptive
- Need to better capture datasets that were used an assessment.
- Scale down the next assessment

# Marine and Coastal

CONDITION & TRENDS VOLUME

- Two primary chapters - Marine Fisheries & Coastal
- The boundary between marine and coastal is currently 50 m depth contour
- Coastal has inland boundary of 100 m elevation (to cover land based influences)

- Marine fisheries and aquaculture also included in the Food Chapter and the Cultivated Systems Chapter
- Other aspects such as climate change,nutrient cycling etc. are covered in other chapters

# Lessons Learned

Defining key variables/drivers that policy makers can relate to need to be defined ASAP

Engage as broad a base of researchers and connect with international initiatives early in the assessment

Need to look at how to best measure or define uncertainty relating to trend data

Difficult to link ecosystem services to human-well being outside of food provisioning

Need to promote economic valuation studies that focus on non-market values

# Marine and Coastal

SCENARIO

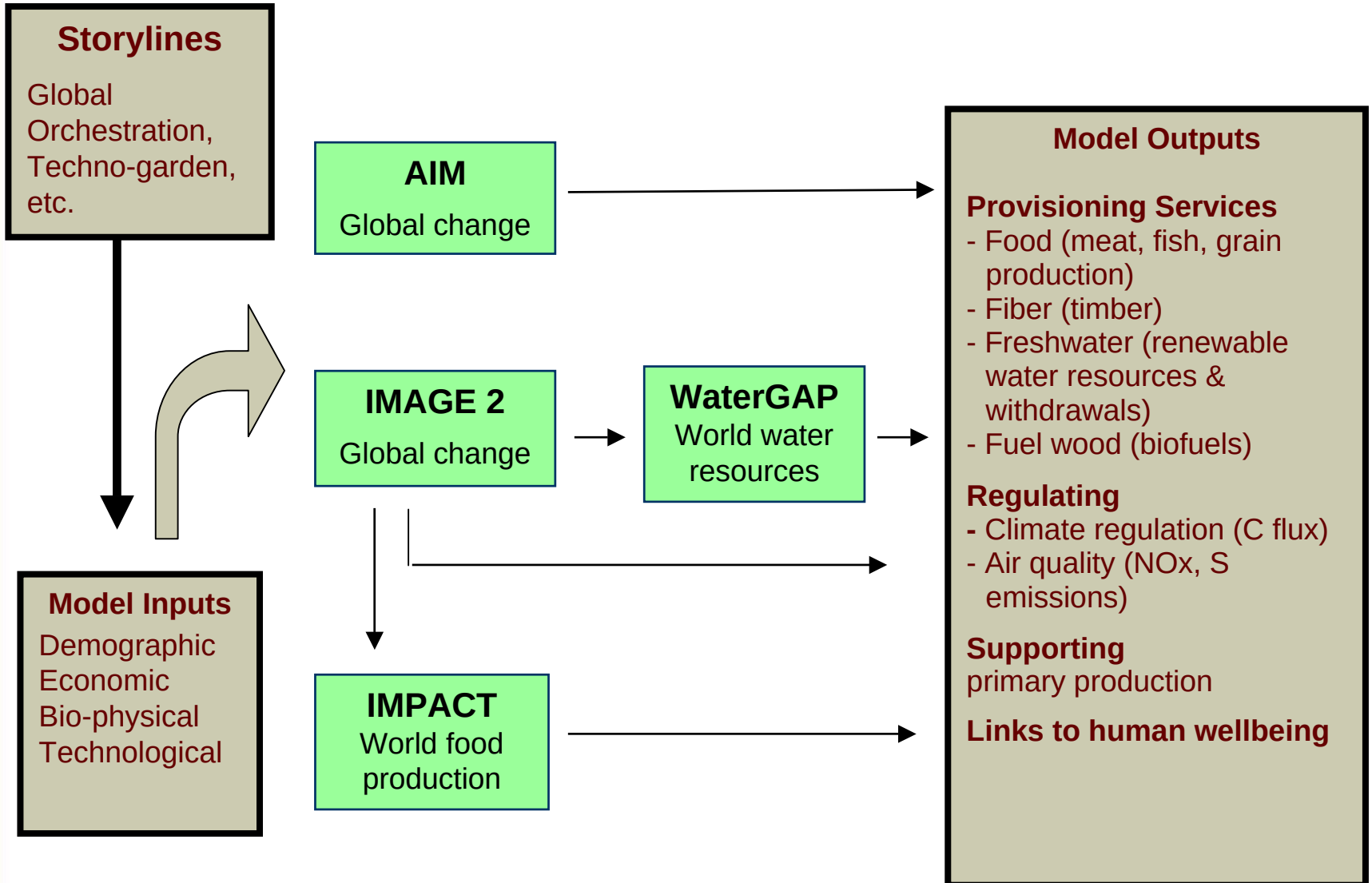
4 Scenarios eventually used

Scenarios used to explore what futures are plausible and not what will happen in the future

- Used a combination of quantitative modeling and narrative storylines
- Models and storylines harmonized as much as possible
- Agreed data sets used as inputs to the models as well as storylines - population growth, water demand, landuse change, freshwater inputs

# Marine and Coastal

## Approach to Quantifying the MA Scenarios



# Marine and Coastal

## Storylines

• major coastal habitats, especially as they relate to the Ramsar Convention based on four drivers

•Drivers - climate changed, invasive species, landuse change, freshwater inputs

•Fisheries - inshore and offshore (EEZ), high seas and aquaculture

# Marine and Coastal

What are the consequences for ecosystem services and human well-being of alternative worlds in which different approaches to sustainability are emphasized?

| Scenario Name | Dominant Approach for Sustainability |
|---|---|
| Order from Strength | Reserves, parks, national-level policies |
| Global Orchestration | Economic growth, public goods |
| Adapting Mosaic | Local-regional governance, common-property institutions |
| TechnoGarden | Green technology |

# Marine and Coastal

## Modelling

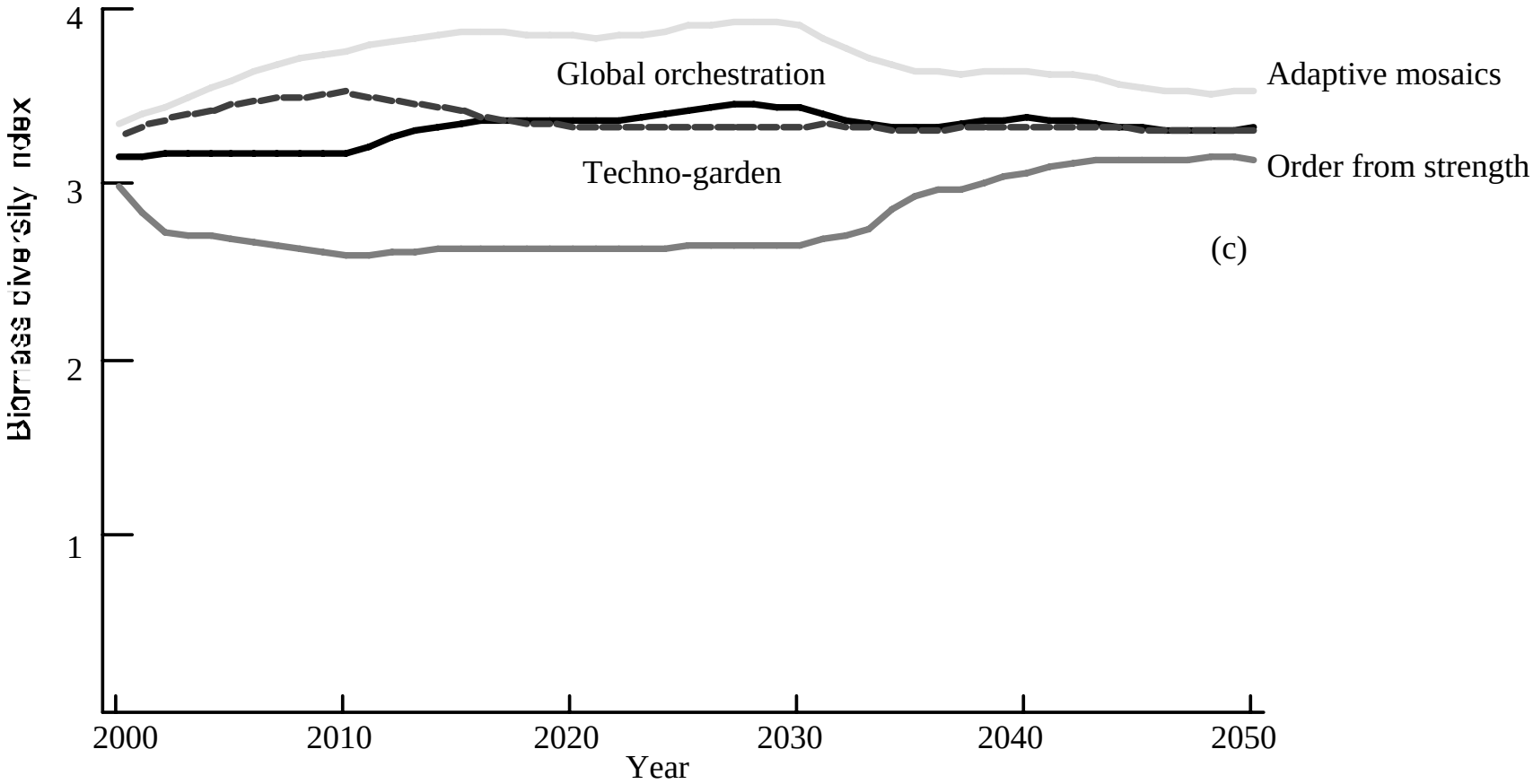
- No global marine model

- Ecopath with Ecosim used for 3 representative areas

- Gulf of Thailand, Central North Pacific & North Benguella

- Changes in catches, catch value and diversity of the landings (Kempton's Q)

# Marine and Coastal
# Central North Pacific - Diversity



# Lessons Learned

- Need lots of time to harmonize storylines and models, as well as within models
- Need to include people who are doing the trends in the development of storylines and verification of model outputs
- Scenarios that represent some of the extremes of the drivers are easier for people to differentiate conceptually
- Combining storylines and modelling sends a powerful message to policy makers.

# Marine and Coastal

## Responses Working Group

### Part I: Conceptual Framework for Evaluating Responses

- Typology of reponses (legal, institutional, economic, technical, ecological)
- Methodologies to assess responses
- Uncertainties in the effectiveness of responses

### Part II: Assessment of Past and Current Responses

- Biodiversity
- Food, fiber, fresh water, fuel
- Nutrients, waste, climate
- Cultural services
- Integrated responses

### Part III: Synthesis: Ingredients for successful responses

- Poverty reduction
- Health
- Choosing responses
- Millennium Development Goals

# Marine and Coastal

Responses

No specific marine-coastal-fisheries chapter

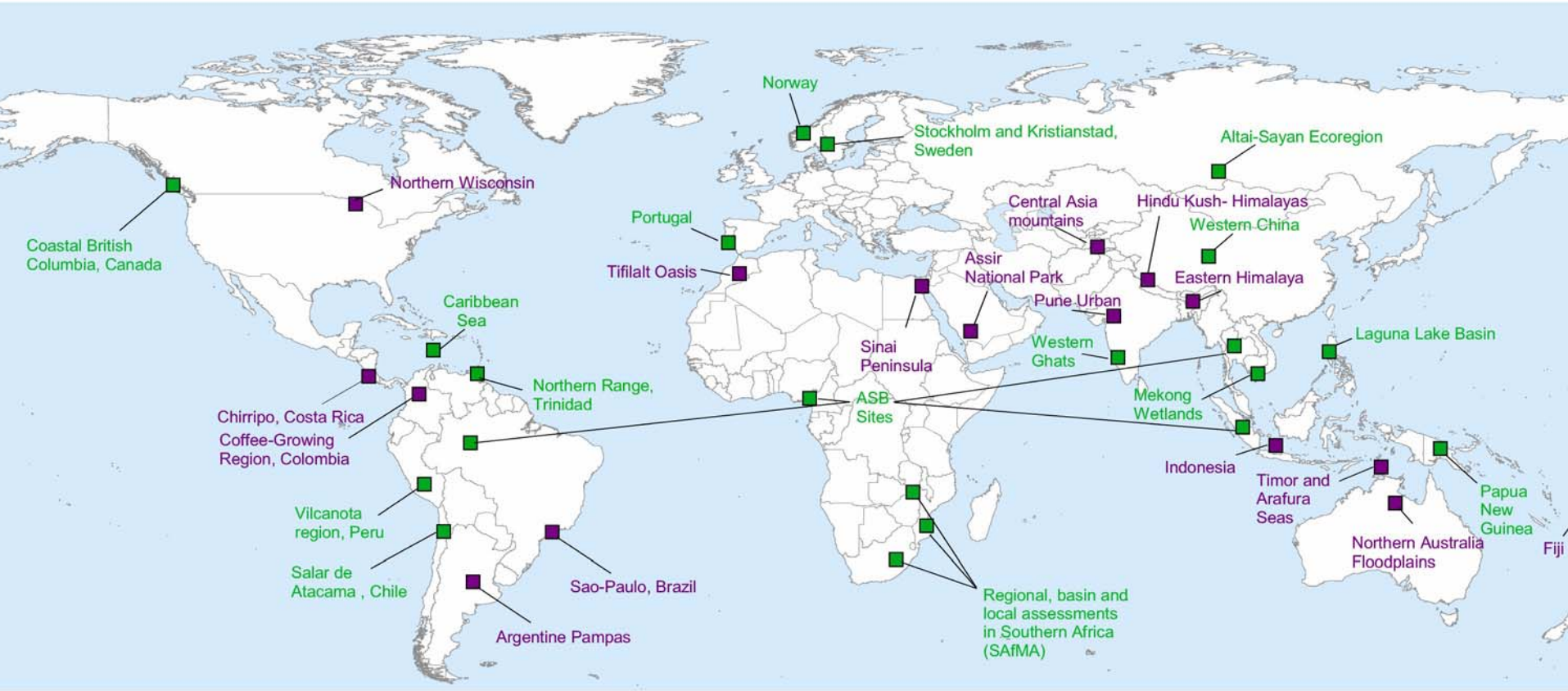
Limited review of fisheries management responses in the food chapter

Integrated Responses Chapter - ICZM and MPAs but limited

# Lessons Learned

- More interactions with the other groups
- Longer lag time
- Responses for marine and coastal issues were often buried with other issues
- Difficult to be relevant and not prescriptive

# Millennium Ecosystem Assessment Around the World




**Sub-Global Assessments: Approved Assessments**

Africa (southern regions), Canada, Caribbean region, Chile, China (western regions), India, Kenya, Norway, Peru, Papua New Guinea, Philippines, Portugal, Sweden, Trinidad, Vietnam

**Sub-Global Assessments: Associated Assessments**

Arafura and Timor Seas, Argentina, Asia (central regions), Australia, Brazil, Colombia, Costa Rica, Egypt, Fiji, India, Indonesia, Morocco, Saudi Arabia, United States

# Coastal British Columbia, Canada
## The Coast Information Team (CIT)

| | |
|---|---|
| **Location** | **North and central coastal British Columbia, comprising 11 million ha of the traditional territories of 26 First Nations (aboriginal peoples)** |
| **Institutions** | • **Independent scientists and local experts, overseen by a management committee and supported by a secretariat**<br>• **Representatives from mandating stakeholder groups include the provincial government, First Nations, environmental groups, forest product companies and the community-at-large** |
| **Contact** | **Robert Prescott-Allen, Padata, Inc. (padata@pinc.com)** |

**Brief Project Summary**

**Focal issues**

- **Recession and high unemployment, due to challenges facing the regional economy dominated by fishing, logging and other resource-based industries**
- **Unresolved land management and land use issues, pending outcome of settlements with some First Nations**

**Activities**

- **Providing information for decision-making using an ecosystem-based approach**
- **Project components include an ecosystem-based management framework, regional and sub-regional analyses, a hydroriparian decision tool, and assistance with the development of land use plans**

**The CIT project has obtained funding of C$3 million from the provincial government, environmental NGOs, and forest products companies**

# Lessons Learned

- Need to be a part of the development of global storylines
- Subglobal assessments help to provide the detail that global assessment glossed over.
- Multi-scale provided detail at various levels giving relevance to different policy makers.

# Thank you!

For more information:

www.millenniumassessement.org

Also for fisheries information

www.searoundus.org