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Montreal, 12-16 November 2001
Item 3.2 of the provisional agenda*

REPORTS: ASSESSMENT PROCESSES

Status and draft outline of the Millennium Ecosystem Assessment

Note by the Executive Secretary

1. At the request of the secretariat of the Millennium Ecosystem Assessment, the Executive Secretary is circulating herewith, for the information of participants in the seventh meeting of the Subsidiary Body on Scientific, Technical And Technological Advice (SBSTTA), a report on the status and a draft outline of the Millennium Ecosystem Assessment, prepared by the Assessment secretariat.

2. The report is being circulated in the form and language in which it was received by the Secretariat of the Convention on Biological Diversity.

* UNEP/CBD/SBSTTA/7/1.

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MILLENNIUM ECOSYSTEM ASSESSMENT REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY SBSTTA

Status and Draft Outline

Information Document

Executive Summary

1. The Millennium Ecosystem Assessment initiated its technical design phase in April 2001. Two technical design workshops (in the Netherlands and South Africa) and numerous consultations with the users of the Assessment have been undertaken as part of the design phase. Based on requests from SBSTTA and additional consultations and input from the Secretariat, SBSTTA Bureau, and Parties, a provisional set of assessment topics that the MA will seek to address is presented in Annex I. This list will be further revised based on input from SBSTTA and reviewed and approved by the MA Board in January 2002. The Assessment phase will begin in early 2002, with several interim products to be released during 2002-2003. The final documents and a Summary for Policymakers targeted at the needs of SBSTTA will be released in 2004.

2. The following draft elements from SBSTTA would further strengthen the contribution of the MA to the needs of SBSTTA:

Welcoming the report of the MA,

1. *Endorses* the overall approach of the MA;

2. *Supports and welcomes* the draft outline of the MA as contained in document UNEP/CBD/SBSTTA/7/INF/15;

3. *Invites* the MA to integrate assessments of the following topics into its work:

a) examination of the impact of forest fragmentation on biodiversity, particularly through the use of sub-global assessments in various nations;

b) assessment of mechanisms for the mitigation of climate change impacts on coral reefs, particularly through the use of sub-global assessments in various nations;

4. *Calls upon* Parties to provide nominations for experts for the four Working Groups of the MA;

5. *Requests* the Executive Secretary to closely work with the MA Secretariat so that the CBD Rosters of Experts are fully utilised in the process for nominating experts;

6. *Recommends* that the Conference of the Parties:

a) recognize that the assessment priorities of the MA have been identified through consultation with SBSTTA to help meet the needs of the Parties to the Convention; and

b) request SBSTTA to continue to identify opportunities for collaboration with the Millennium Assessment in contributing to the assessment needs of the Convention; and

c) urge Parties to provide assistance to developing country Parties so that experts from these Parties can properly participate in the work of the MA.

I. BACKGROUND

3. In paragraph 25 of its decision V/20, the Conference of the Parties recognised that there is a need to improve the quality of the scientific, technical and technological advice provided to it and to undertake sound scientific and technical assessments, including in-depth assessments of the state of knowledge on issue critical for the implementation of the Convention. To this end, the Conference of the Parties

requested SBSTTA to undertake a number of pilot assessments and to invite the MEA to work closely with SBSTTA in this undertaking (see decision V/21 paragraph 10 and V/20 paragraph 29 (b)).

4. In response to these decisions SBSTTA, at its sixth meeting adopted recommendation VI/5 on the development of methodologies and identification of pilot studies for scientific assessments. By this recommendation SBSTTA invited the MA to integrate assessments of the following topics in its work:

(a) The interrelationship between biodiversity and climate change, in line with SBSTTA recommendation VI/7, which concerns biodiversity and climate change, including cooperation with the UNFCCC

(b) Inland water biodiversity, its uses and threats

(c) Further aspects of marine and coastal biodiversity, drawing upon the work already conducted by SBSTTA;

(d) Further aspects of forest biodiversity, as identified by the SBSTTA on the basis of the work of the Ad Hoc Technical Expert Group on Forest Biological Diversity established by the COP at its fifth meeting, in May 2000.

5. Accordingly, the Executive Secretary invited the secretariat of the Millennium Assessment to contribute to the work of the Convention and to ensure that biological diversity concerns are addressed by the Assessment. In response to this invitation, the Assessment secretariat initiated a consultation process between the Assessment co-chairs and the Secretariat of the Convention, as well as with experts involved in work of SBSTTA, to obtain guidance on the focus of the Assessment. Of central importance in this process were two technical design meetings for the MA that considered the overall substantive focus of the Assessment. The first technical design meeting was held in Bilthoven, Netherlands on April 8-11 and involved approximately 90 individuals from 31 countries. The second design meeting was held in Cape Town South Africa on October 8-11 and involved approximately 110 individuals from 39 countries. Both meetings involved a number of users as well as experts very familiar with the CBD. In particular, the Chair of SBSTTA participated in both workshops and a representative of the CBD Secretariat participated in the Cape Town workshop. Both meetings also considered how they could meet the needs identified in recommendation VI/5.

6. This note has been prepared by the Secretariat of the Millennium Assessment to provide a short progress report a work plan, and to outline potential Millennium Assessment interactions with SBSTTA.

II. MA OVERVIEW AND STATUS REPORT

7. The Millennium Ecosystem Assessment, launched in June 2001, is an integrated assessment, designed to meet assessment needs of the Convention on Biological Diversity, Convention to Combat Desertification, Wetlands Convention and other users including the private sector, civil society, and indigenous peoples. It has been invited by the Conferences of Parties of each of these three conventions to provide assessment input to their scientific and technical subsidiary bodies.

8. The objectives of the MA are to help meet the needs of decision-makers for peer-reviewed, policy-relevant scientific information on issues they are confronting concerning ecosystems and human well-being. The MA will provide information and also build human and institutional capacity to provide information. If the MA process is successful in meeting the needs of users, it is anticipated that the process would be repeated at regular intervals (of possibly 5 or 10 years).

9. The Millennium Ecosystem Assessment will be undertaken at multiple scales. It consists of a global assessment as well as series of linked regional and national assessments. The Assessment will be carried out through four expert working groups. Each working group will aim to produce a report by 2004 focused on the following topics:

(a) The Sub-Global Working Group will present a generic methodology for conducting multi-scale assessments, and summarise the findings from each of the sub-global assessments associated with the MA. The sub-global components of the MA will directly meet the needs of

decision-makers at those scales. In addition, the sub-global components of the MA will strengthen the global findings with on-the-ground reality and inform the local findings with global perspectives, data, and models. Assessments already being initiated may become components of the MA include: Southern Africa Focal Region Assessment; Southeast Asia Focal Region Assessment; Norway National Assessment; Integrated Ecosystem Assessment for Western China; Local Assessments in the Mala Village Cluster in India; and Local Assessments in Sweden. It is anticipated that additional sub-global assessments will be initiated during the course of the MA. The MA is able to provide only seed funding for the sub-global assessments, with the bulk of funds raised individually by each sub-global assessment. Any proposed sub-global assessments meeting basic criteria developed by the MA (available on the MA website) can become a full component of the MA process;

(b) The Condition Working Group will describe each major ecosystem service. The condition and geographical distribution and trends of the supply and demand for each service will be considered and the capacity of ecosystems to supply these services, and the impacts of the changes in ecosystems on their provision will be described. A description of the current extent, condition and trends of ecosystems, presented in commonly referenced ecosystem and biome units (e.g., forests, freshwater, coastal, mountain, etc.)biome by biome, and options for trade-offs between the provision of the various services will be given. Chapters will also address issues such as species use of multiple ecosystem types; areas with multiple examples of rapid change; land conversions, and Protected Areas. The final section of the product will aim to assess the impacts of ecosystem change on human well being, covering indicators of health, environmental security, cultural security, economic security and equity;

(c) The Scenarios Working Group will summarise the current conditions of ecosystems and driving forces, and then present the storylines of the various scenarios of changes in the 'driving forces' influencing ecosystems, and then examine the implications of those changes in driving forces on the services provided by the ecosystems including the conservation of biodiversity. Three or four main scenarios will be developed, each dealing with possible futures of primary drivers, proximate drivers and ecosystem services, and then examining the implications of the possible futures for human well being. The state of models for predicting ecosystem will be evaluated; and

(d) The Response Options Working Group will begin with an introduction to the conceptual framework and the typology of response options within categories of disciplinary tradition, social control, drivers and scale. Then there will be an assessment of past and current response options, which will provide the basis for practical recommendations, tools and guidelines for the various users through an evaluation of existing literature and the MA sub-global assessments. Finally, there will be a synthesis of the "ingredients for successful responses", based on an evaluation of available policies and scenarios.

10. A more detailed outline of the reports of the Working Groups is provided in Annex I.

11. The MA incorporates the following design elements relevant to the use of MA findings by the CBD:

(a) *The MA will not report information for individual nations.* The information and findings that the MA will produce will be summarized by region or ecosystem type – not by nation – for the global synthesis. Disaggregated data will be available for use by others in national assessment processes.

(b) *Sources of information.* The MA will use a wide range of data and information, relying heavily on peer reviewed findings in the published literature and global datasets. The process will also incorporate indigenous and traditional knowledge, national data available from a wide range of ministries, private sector information and so forth. In particular, the MA will seek to incorporate information from National Biodiversity Strategies and Actions and will seek to

develop products and build capacity that can be directly helpful in updating National Biodiversity Strategies and Action Plans.

(c) *Indicators.* A relatively small amount of the vast amount of ecosystem-related data and information is useful at the "global" scale. The MA will focus on synthesizing knowledge and reviewing best practices concerning methodologies for developing and applying indicators related to ecosystems in order to provide guidance to countries that may wish to develop and use policy- or management-related indicators;

(d) *The MA will report where possible using the basic CBD ecosystem categories.* Where possible, the MA findings will be reported using the CBD "ecosystem" breakdown of: forests, dryland, marine/coastal, mountain, and agroecosystems. In addition, findings will be reported for significant ecosystems not well addressed by those divisions, such as island ecosystems; and

(e) *The MA will use the ecosystem approach as a guiding paradigm for its assessment.* The MA was designed to be consistent with, and a tool for, implementing the ecosystem approach of the Convention on Biological Diversity as described in decision V/6, including the need to support capacity-building to implement the ecosystem approach (paragraph 6).

12. The MA will be closely coordinated with other environmental and sectoral assessment processes including IPCC, the Global International Waters Assessment (GIWA), the Global Environment Outlook (GEO), the Forest Resources Assessment (FRA), the Land Degradation Assessment (LADA), etc. to ensure that it adds value to activities already underway.

13. Major sponsors of the MA include GEF, UN Foundation, David and Lucile Packard Foundation, and the World Bank with additional financial and in kind support provided by the CGIAR, FAO, Government of Norway, Rockefeller Foundation, UNDP, UNEP, UNESCO, U.S. National Aeronautics and Space Administration, the WHO, and others.

14. The MA Board includes representatives of those users (CBD, CCD, Ramsar Wetlands Convention) as well as other key international institutions including UNEP, UNDP, FAO, UNESCO, WHO, CGIAR, ICSU, GEF, UN Foundation, and the FCCC. The MA Director is based in Malaysia at the office of ICLARM (a centre of the Consultative Group on International Agricultural Research – CGIAR) and employed by UNEP, with members of the secretariat based at ICLARM (Penang, Malaysia), UNEP-WCMC (Cambridge, U.K.), SCOPE (Paris, France), UNEP-Nairobi, WRI/Meridian Institute (Washington, D.C.). The Institute for Economic Growth (New Delhi, India) is likely to also house one of the secretariat support units.

15. As mentioned above two technical design meetings for the MA have been held sine the last meeting of SBSTTA. The first technical design meeting was held in Bilthoven, Netherlands on April 8-11 and involved approximately 90 individuals from 31 countries. The second design meeting was held in Cape Town South Africa on October 8-11 and involved approximately 110 individuals from 39 countries.

16. Because the MA is a 'needs driven' assessment process, during 2001 (and continuing throughout the MA process), a number of steps have been taken to involve intended users in the MA design through both formal (e.g., SBSTTA) and informal dialogues. Among the steps being taken are the following:

(a) Information needs from the MA were discussed at the sixth meeting of SBSTTA as well as the Ramsar Wetlands Convention Scientific and Technical Review Panel (Ramsar STRP) (June), the Committee on Science and Technology of the Convention to Combat Desertification (CCD CST) Bureau (August), and the CCD CST (October);

(b) The MA sub-global assessment planning activities now underway in South Africa, Southeast Asia, China, India, Norway, Sweden, and other countries all include extensive involvement of the users in their planning phase;

(c) A workshop was held in early October with individuals from the private sector to explore how the MA could contribute to sustainable development planning within business;

(d) A series of meetings and consultations are being planned to explore user needs within civil society and indigenous peoples' organizations.

(e) The first draft of the "user needs" outline was made available through the MA website in August 2001 and comments were incorporated based on the input of some 27 individuals and institutions including representatives of governments (8), international organizations (2), NGO's (8), academia (7), and private sector (2).

17. A workplan outlining in more detail the forthcoming steps in the MA is provided in Annex II. The outline (as provided in Annex I) and workplan will be revised again in light of the recommendations of this meeting of SBSTTA and submitted to the MA Board for final revisions and approval at its next meeting, January 2002 in Kuala Lumpur, Malaysia.

III. MEETING CBD NEEDS

18. Clearly, the MA cannot hope to meet all of the specific needs of each audience. Instead, it will identify a set of assessment needs shared widely among various users and a small number of additional "high priority" assessment needs of individual users.

19. With a view to identifying the priorities of the CBD, the Assessment secretariat reviewed the decisions of the COP and recommendations of the SBSTTA in light of the MA draft outline to identify opportunities where the MA can directly assist in meeting the identified assessment needs of the Convention. Based on this review and discussions with the Executive Secretary and members of the Bureau of SBSTTA, the MA has identified a list of needs of the CBD and contributions that can be made by the MA that is described in detail in Annex III. Generally, the MA is able to contribute to the assessments needs of CBD in the following manner:

(a) *Needs identified in SBSTTA recommendation VI/5*. Assessment information pertaining to several of these issues falls into the category of information needs of multiple audiences of the MA (discussed above). Specifically, each of the following items will be addressed as part of the core MA analysis: a) Inland water biodiversity, its uses and threats; b) Further aspects of marine and coastal biodiversity, drawing upon the work already conducted by SBSTTA; and, c) Further aspects of forest biodiversity.

(b) *The interrelationships between biodiversity and climate change.* The MA is working with the IPCC to provide a coordinated set of assessment products concerning the interrelationship between biodiversity and climate change. IPCC was invited by SBSTTA to contribute a technical paper on this topic to SBSTTA-7. That technical paper will identify additional needs for assessment information concerning the interrelationship between climate and biodiversity. Based on the findings of that technical paper, and guided by the needs of the ad hoc technical expert group that will be established to prepare scientific advice to integrate biodiversity considerations into the implementation of the FCCC (SBSTTA VI/7.5), the MA will undertake additional assessment work to fill the gaps identified by the IPCC and to provide additional information related to particularly important policy issues.

(c) *Methodologies.* SBSTTA and the CBD Secretariat have encouraged the MA to provide methodologies and tools that can be used at national scales. To meet this need, the first product that will be produced by the MA, in late 2002 (for release at SBSTTA-8), will be a methodology manual for undertaking integrated ecosystem assessments. This first product will not include detailed information on guidelines for rapid assessment of freshwater biodiversity (see para 0). However, the final MA report (released in 2004) will include a chapter synthesizing the state of knowledge concerning methods for rapid assessment of freshwater biodiversity.

(d) *Forest Fragmentation and Biodiversity*. The core MA documents will inevitably include a synthesis of the 'state of knowledge' concerning the relationship of forest fragmentation and biodiversity since this is a highly policy relevant issue on which a considerable amount of scientific research is now underway. In response to the specific request of CBD Secretariat and

SBSTT-6, it is proposed that the MA produce a separate summary report on this topic on an accelerated schedule, timed for release at SBSTTA-9 (late 2003).

IV. FUTURE COLLABORATION WITH SBSTTA

20. Cooperation between the MA and the CBD process, in particular SBSTTA, has been extensive. Indeed, there already exist detailed procedures within both process for taking notice of and incorporating the products of one another. Reports on the MA will be presented to future meetings of SBSTTA and COP. Side events or working group discussions will be arranged as needed to provide opportunities for detailed input from parties. Also even though the technical volumes produced by the Working Groups of the MA will be prepared to meet the needs of multiple users, a separate Summary for Policymakers will be developed specifically to respond to targeted needs of the CBD SBSTTA.

21. More specifically, there are three areas that SBSTTA may wish to consider in order to further promote cooperation between the MA process and the CBD.

22. The first is with respect to nominating and supporting the work of experts in the Working Groups of the MA. All Parties to the CBD have been invited to nominate experts for the Working Groups. Moreover, the CBD Roster of Experts will also be consulted to identify experts. Policies for selection of Working Group members, preparation of documents, and peer review of documents are consistent with the procedures outlined in UNEP/CBD/SBSTTA/6/9 (Scientific Assessments: Development of Methodologies and Identification of Pilot Studies) and UNEP/CBD/SBSTTA/7/3 Annex 1. Specifically, the composition of the group of Coordinating Lead Authors and Lead Authors for a section or chapter of MA reports will reflect the need to aim for a range of views and expertise and a balanced gender and geographical representation (ensuring appropriate representation of experts from developing and developed countries and countries with economies in transition). Draft reports of the MA will undergo two rounds of peer review, one by experts and one by governments and experts. Nevertheless, support from SBSTTA as the leading scientific, technical and technological body in the Convention process in the nomination process would help the MA in ensuring that the experts in the Working Groups were regionally balanced and did represent the best experts available. Moreover, as the participation of many developing country experts will be contingent upon the some support from developed country Parties, support from the COP may assist in securing the right type of support.

23. Secondly the table below lists the proposed MA products that would be available at upcoming CBD meetings and the guidance that would be sought from those meetings. Approval of this timetable would assist with the planning process of the MA.

Meeting	**MA Input**	**SBSTTA Action and Guidance**
November 12-16, 2001 SBSTTA-7	MA proposed design Schedule of products for CBD	SBSTTA could identify information and capacity-building priorities
April 7-19, 2002 COP-6	MA working group composition Detailed outlines for products Draft MA methodology	
December (?) 2002 SBSTTA-8	Final document available to parties: *"Multiscale Integrated Ecosystem Assessment Techniques: Synthesis of Current Knowledge and Plans for the Millennium Assessment"*	SBSTTA could provide additional priorities for assessment input and recommend the use of these methods and tools in national assessments.
September (?) 2003 SBSTTA-9	Final document available for parties: "Forest Fragmentation and Biodiversity"	SBSTTA could review the findings of this component of the Assessment and introduce findings as appropriate into SBSTTA decisions.

April (?) 2004 COP-7	Tbd	
November (?) 2004 SBSTTA-10	Final "Policy Makers Summary" of the MA available to parties	SBSTTA could review the findings of the Assessment and introduce findings as appropriate into SBSTTA decisions.

24. Thirdly, in light of developments since the last meeting of the SBSTTA the Executive Secretary has suggested several additional targeted needs, including: a) examination of the impact of forest fragmentation on biodiversity, particularly through the use of sub-global assessments in various nations; b) development of rapid assessment methods for biodiversity of inland water ecosystems, in cooperation with the Ramsar Convention on Wetlands; c) assessment of mechanisms for the mitigation of climate change impacts on coral reefs, particularly through the use of sub-global assessments in various nations. The MA would be willing to consider assisting or contributing to these assessments in light of any recommendation from this meeting of the SBSTTA. (Items (a) and (b) were identified in SBSTTA VI/5 as pilot studies under the Scientific Assessment decision.) In the course of the MA design meetings in 2001, items (a) and (c) were identified as priorities for the MA.

25. Based on the foregoing, the following draft elements from SBSTTA would further strengthen the contribution of the MA to the needs of SBSTTA:

Welcoming the report of the MA,

1. *Invites* the MA to provide a report on the status of its work to SBSTTA at its eight meeting;

2. *Endorses* the overall approach of the MA;

3. *Supports and welcomes* the draft outline of the MA as contained in document UNEP/CBD/SBSTTA/7/INF/15;

4. *Invites* the MA to integrate assessments of the following topics into its work:

a) examination of the impact of forest fragmentation on biodiversity, particularly through the use of sub-global assessments in various nations;

b) assessment of mechanisms for the mitigation of climate change impacts on coral reefs, particularly through the use of sub-global assessments in various nations;

5. *Calls upon* Parties to provide nominations for experts for the four Working Groups of the MA;

6. *Requests* the Executive Secretary to closely work with the MA Secretariat so that the CBD Rosters of Experts are fully utilised in the process for nominating experts;

7. *Recommends* that the Conference of the Parties:

a) recognize that the assessment priorities of the MA have been identified through consultation with SBSTTA to help meet the needs of the Parties to the Convention;

b) request SBSTTA to continue to identify opportunities for collaboration with the Millennium Assessment in contributing to the assessment needs of the Convention

c) invite reports on the status of the work of the MA at its future meetings; and

d) urge Parties to provide assistance to developing country Party experts so that they may adequately participate in the work of the MA.

ANNEX I. DRAFT MA OUTLINE

The Millennium Assessment will produce a variety of publications during the four-year process. The Assessment will conclude with the release in 2004 of: (a) four technical volumes presenting the findings of each of the four MA working groups; (b) a Summary for Policy Makers (SPM) for each of the technical volumes; and, (c) between three and five Synthesis Documents tailored to different groups of users that will draw on the findings of all the technical volumes to present information that is most relevant to key 'stakeholders' involved in the MA (e.g., the Convention on Biodiversity, the Convention to Combat Desertification, the Ramsar Wetlands Convention, the Private Sector, and Civil Society). These synthesis documents will be short and targeted on the specific needs of the users. A more detailed version of this outline is available on the MA Website

Sub-Global Assessment Technical Volume

Part I: Introduction, Methods and Tools

Chapter 1. Introduction
Chapter 2. Methods and Tools

Part II: Cross Assessment Synthesis

Chapter 3. Primary Drivers
Chapter 4. Adaptations and coping mechanisms
Chapter 5. Ecosystem services
Chapter 6. Well being, livelihoods and poverty reduction

Part III. Evaluation of Multi-Scale Approach

Chapter 7. Critical reflections on the process
Chapter 8. Impact on Findings
Chapter 9. Impact on Assessment Capacity
Chapter 10. Impact on Usefulness

Annex I: Executive Summaries

A. Executive summary of Assessment #1
B. Executive summary of Assessment #2
C. Executive summary of Assessment #…

Condition and Trends Technical Volume

Part I. Conceptual Framework

Chapter 1. Preface & road map
Chapter 2. Human wellbeing and ecosystem goods & services
- 2.1 Definitions of ecosystem goods and services (EGS); definition used by the MA
- 2.2 Relationship of EGS to other terms used in the area (e.g. natural capital, ecosystem health)
- 2.3 Approaches to valuation of EGS (especially those that are not traded) for use in economic analysis
- 2.4 Limits to the utility of EGS in addressing concerns related to human well-being and the intrinsic value of ecosystems and biodiversity

2.5 Relationship between better management of ecosystems/EGS and poverty alleviation

Chapter 3. Role of ecosystems in the provision of EGS
- 3.1 Definitions of ecosystems; definition used by the MA.
- 3.2 Concepts of ecosystem structure, process and function
- 3.3 Possible level(s) of ecological categorization (biome, land cover or land use classes etc) for reporting in the MA and the scaling issues involved
- 3.4 Types of linkages between ecosystems and the EGS they provide
- 3.5 Major trade-offs in the supply of EGS

Chapter 4. Intrinsic Value of Ecosystems and Biodiversity

This chapter will assess non-utilitarian approaches to the consideration of ecosystems and biodiversity and how these approaches are or are not compatible with utilitarian approaches

Chapter 5. Discussion of related concepts

Chapter 6. Drivers (pressures, determinants) of ecological, social and economic change
- 6.1 Ecological drivers (e.g., land-cover change, fragmentation, climate change, nitrogen deposition etc)
- 6.2 Socio-economic drivers (e.g., governance, institutional change, technological change, globalization etc.)
- 6.3 Policy drivers, including scales of policy implementation
- 6.4 Integrating frameworks

Chapter 7. Data availability and quality by scale

Chapter 8. Valuation of ecosystem goods and services
- 8.1 Factors determining the economic value of G&S including their tradability and degree of commercialization
- 8.2 The concept of total value
- 8.3 Value of flows of G&S and value of change in stocks (assets/depletion/ appreciation)
- 8.4 Valuation approaches
- 8.5 Valuation methods

Chapter 9. Methods and tools

Part II - Ecosystem Goods & Services

Chapter 10. Freshwater
- 10.1 Current state and historical and recent trend in demand
- 10.2 Current state and historical and recent trend in supply
- 10.3 Relative distribution of demand and supply
- 10.4 Impact, state and historical and recent trend of ecosystem supporting services
- 10.5 Causality of observed changes

Chapter 11. Food

Chapter 12. Biodiversity

In the course of addressing the issues in the framework of x.1 to x.5, this chapter will address such issues as: A) how well can patterns of diversity of well known groups of species (e.g., plants, birds, mammals) be used to predict patterns of diversity in poorly known groups? B) What is the documented rate of species extinction over the past 100 years and how does this compare to rates in the fossil record? C) How well are documented species extinctions likely to represent species extinctions in the same taxonomic groups in regions more poorly studied or in more poorly known taxonomic groups? D) Can scientists conclusively detect the "fingerprint" of a current mass extinction episode? E) What has been the recorded and estimated loss and gain of species and genetically distinct populations in undomesticated and domesticated (e.g., agriculture, plantation) ecosystems? Etc.

- 12.1 Current state and historical and recent trends in demand

12.2 Current state and historical and recent trend in supply
12.3 Relative distribution of demand and supply
12.4 Impact, state and historical and recent trend of ecosystem supporting services
12.5 Causality of observed changes

Chapter 13. Nutrient Cycling (Carbon, Nitrogen, Phosphorous, etc.)
Chapter 14. Waste Treatment
Chapter 15. Flood and Storm Protection
Chapter 16. Cultural Services (Spiritual, Aesthetic,
Chapter 17. Other Services
17.1 Other biological products
17.2 Soil formation
17.3 Biological and disease vector control
17.4 Climate regulation
17.5 Atmospheric composition regulation
17.5 Pollination
17.6 Landscape interconnection and structure / refugia
17.7 Space – availability and pattern of use of land and water (including urban centres, transport, industry)
17.8 Social relations & values

Part 3. Condition and causality - Analysed by ecosystems

Chapter 18. Terrestrial Biomes/Ecosystems
18.1 Agroecosystems
18.1.1 Overview of the ecosystem
18.1.2 Impacts on the ecosystem (summation across the EGS they provide)
18.1.3 Capacity of the ecosystem to continue to provide EGS
18.2 Deserts
18.3 Forests and woodlands
18.4 Grasslands
18.5 Shrublands
18.6 Subterranean (caves)
18.7 Urban

Chapter 19. Freshwater, Coastal, and Marine Biomes/Ecosystems
19.1 Coastal systems (including small islands)
19.2 Inland waters and wetlands (including groundwaters)
19.3 Oceans
19.4 Polar (may be dealt with also under terrestrial)

Chapter 20. "User Defined" Ecosystems
20.1 River basins
20.2 Wetlands (Ramsar definition)
20.3 Drylands (CCD definition)
20.4 Mountains

Chapter 21. Synthesis
21.1 Migratory, nomadic and other species that use multiple ecosystems
21.2 Areas with multiple examples of rapid change
21.3 Land conversions
21.4 Changing landscapes
21.5 Protected areas

Part IV. Human wellbeing and ecosystem services

Chapter 22. Constituents and determinants of wellbeing
Chapter 23. Measures and Indicators of wellbeing
- 23.1 Health and vulnerability
- 23.2 Environmental security
- 23.3 Cultural security
- 23.4 Economic security
- 23.5 Equity

Chapter 24. Ecosystem Condition and Human Wellbeing
Chapter 25. Human Wellbeing and Primary Drivers

Scenarios Technical Volume

Part I. Introduction, Methods, and Baseline

Chapter 1. Introduction
Chapter 2. Assessment of findings of global scenario studies relevant to ecosystems and their goods and services.
Chapter 3. Methodology
Chapter 4. Current Conditions and Trends
Chapter 5. Driving Forces

Part II. Ecosystem Scenarios

Chapter 6. Overview of Scenarios

Chapter 7. Plausible Futures of Primary Drivers

Chapter 8. Plausible Futures of Proximate Drivers

Chapter 9. Plausible Futures of Ecosystem Services

Chapter 10. Future Trends in and Implications for Human Well-being
- 10.1 Implications for economic factors such as income, wealth distribution
- 10.2 Implications for health
- 10.3 Implications for biodiversity (e.g., what would it take to stop the loss of biodiversity?)
- 10.4 Implications for wetlands
- 10.5 Implications for desertification

Part III. Synthesis
Chapter 11. Synthesis

Response Options Technical Volume

Part I. Conceptual Framework for Evaluating Response Options

Chapter 1. Conceptual framework of response options working group
Chapter 2. Typology of response options

2.1 By disciplinary tradition (economic instruments, laws, institutions, participatory processes, etc.)
2.2 By forms of social control (deterrence, positive incentives, generative, preclusive, cognitive, normative)
2.3 By primary and proximate drivers
2.4 By scale (local, national, regional and global)

Chapter 3. Characteristics of "desirable" response options

Chapter 4. Assessing the effectiveness of the response options
4.1 Criteria and indicators
4.2 Evaluation methodology based upon white paper

Part II. Assessment of Past and Current Response Options

Chapter 5. Introduction

Chapter 6. Legal reform
6.1 Rights to resources and land tenure
6.2 Legal reforms necessary to serve as the basis for new institutions for ecosystem management (e.g., river basin management, etc.)
6.3 Rights to participate in decision-making
6.4 Rights to environmental quality
6.5 International legal frameworks
6.6 Feasibility of legal reform

Chapter 7. Policy reform
7.1 Removal of perverse incentives
7.2 Market-based incentives (e.g., new private property rights, certification systems, etc.)
7.3 Impact of policies in other sectors
7.4 Feasibility of policy reform

Chapter 8. Institutional reform
8.1 Mechanisms to align costs and benefits between those who benefit from a change in ecosystem services and those who are harmed (e.g., upstream, downstream)
8.2 Institutional needs for effective policy reform (e.g., property rights)
8.3 Changing mandates of existing institutions
8.4 Feasibility of institutional reform

Chapter 9. Governance reform
9.1 Public access to information
9.2 Public participation in decision making
9.3 Co-management of resources
9.4 Corruption
9.5 Feasibility of governance reform

Chapter 10. Local, Traditional and Indigenous Knowledge
10.1 Mechanisms to incorporate traditional, local, and indigenous knowledge in assessments and management practices at all scales.
10.2 Feasibility of incorporation of local, traditional and indigenous knowledge

Chapter 11–16. Case Studies

Each of the five (or so) case study chapters will assess the literature pertaining to the effectiveness of response options to deal with a particular problem concerning ecosystems and their goods and services. These case studies could be undertaken in a particular region or locale, or could look at a particular issue (e.g., response options for climate change impacts on biodiversity) across many different regions. Where possible, these case studies will be selected from the sub-global components of the MA. In response to the request from the CBD, one of these case studies will address the issue of

forest fragmentation and biodiversity and another will examine response concerning linkages between climate and biodiversity (e.g., how should protected areas be managed in light of future impacts of climate change). Each will follow the following structure.

Part III. Synthesis: "Ingredients for successful responses"

Chapter 17. Introduction
Chapter 18. Lessons learned from Part II
- 18.1 What options have been used to deal with changes in ecosystem services: with what possible consequences?
- 18.2 What options address the CBD objectives of the conservation, sustainable use, and equitable sharing of benefits of biodiversity?
- 18.3 What response options can be used to address concerns of poverty alleviation?
- 18.4 Impact of responses in changing the availability of ecosystem services
- 18.5 Which options were successful, which failed and why?
- 18.6 Cumulative impacts of interventions across scales
- 18.7 Trade-offs and synergies

Chapter 19. Responses in regional and global scenarios
- 19.1 Review of response options in existing scenarios studies and MA-scenarios
- 19.2 Gaps in scenarios studies
- 19.3 Recommendations for future scenarios studies and assessments

Chapter 20. Uncertainties in assessing the effectiveness of response options regarding ecosystem services
Chapter 21. Response options for ecosystem services and human well-being

ANNEX II MA WORKPLAN

2000	
July 2000	1st MA Board Meeting (Norway)
2001	
April	1st Technical Design Meeting (Netherlands)
October	2nd Technical Design Meeting (Cape Town)
Nov ember	Call for Nominations for Working Groups
2002	
January	2nd MA Board Meeting (Kuala Lumpur)
March to June	1st MA Working Group Meetings
December	Release of 1st MA Product "Methodologies for Conducting Multiscale Ecosystem Assessments"
2003	2nd Working Group meetings Beginning of Review Process for Assessment Reports Release of interim products
2003	Review Process Release of Final Products

Note: Active consultation with the users of the MA will continue throughout the process, both through the direct involvement of representatives of the users on the MA Board and through active involvement of the users and stakeholders in the process.

ANNEX III MA CONTRIBUTION TO CBD DECISIONS AND RECOMMENDATIONS

The MA Secretariat has reviewed CBD COP and SBSTTA recommendations regarding assessment needs and summarized that information below to assist in determining opportunities where the MA can assist the CBD in meeting its assessment needs. The second column presents information on how the work of the MA could meet these assessment needs.

	CBD COP DECISIONS AND SBSTTA 6 RECOMMENDATIONS	MA PROPOSED ACTION
STATUS AND USE		
1.	Globally, and for the United Nations regions, assess status, uses, and threats to biodiversity within the ecosystem categories of the CBD: Inland Waters, Marine/Coastal, Agro-Biodiversity, Forests, Drylands, Mountains. (e.g., Decisions IV/4A; IV/7.12)	This is a core component of the MA.
2.	Encourages Parties to address the lack of information on the status of inland water biological diversity as a basis for future decisions on inland water at the national level and to include this information in their national reports; (Decision V/2, IV/4)	The MA will provide both additional data and methodological tools for use at national level. The sub-global assessments will directly meet these national needs in the regions where they are undertaken
3.	Provide knowledge on key processes and influences in ecosystems which are critical for structure, function, and productivity of marine and coastal biological diversity (e.g., Decision IV/5)	This is a core component of the MA.
4.	Reduce gaps in knowledge in the areas of fragmentation of habitats and population viability to include mitigation options such as ecological corridors and buffer zones in forest ecosystems (e.g., Annex to Decision IV/7)	The MA proposes a special report on fragmentation and biodiversity to be released in 2003 to address this need.
5.	SBSTTA-6 invited the MA to integrate assessments of the following topics in its work: a. The interrelationship between biodiversity and climate change, in line with SBSTTA recommendation VI/7, which concerns biodiversity and climate change, including cooperation with the UNFCCC b. Inland water biodiversity, its uses and threats c. Further aspects of marine and coastal biodiversity, drawing upon the work already conducted by SBSTTA; d. Further aspects of forest biodiversity, as identified by the SBSTTA on the basis of the work of the Ad Hoc Technical expert Group on Forest Biological Diversity established by the COP at its fifth meeting, in May 2000. (SBSTTA-6 Decision VI/5)	The MA will carry out the work requested in this invitation.
METHODOLOGIES FOR ASSESSMENT AND VALUATION		
6.	Review methodologies for the assessment of biodiversity and develop and disseminate regional guidelines for rapid assessment of biodiversity for different types of inland water ecosystems (e.g., Decision IV/4C; Decision IV/4A, SBSTTA recommendation IV/5)	The MA will synthesize state of knowledge concerning assessment techniques
7.	Develop methods and techniques for the valuation of goods and services of inland water ecosystems (e.g., Decision IV/4A)	The MA will synthesize state of knowledge concerning valuation

	CBD COP DECISIONS AND SBSTTA 6 RECOMMENDATIONS	MA PROPOSED ACTION
		techniques.
8.	Develop rapid assessment methods for marine and coastal biological diversity, in particular guidelines for ecosystem evaluation and assessment. (SBSTTA recommendation IV/5)	The MA will contribute information on methodologies for multiscale assessments but does not plan to focus on rapid assessment techniques for particular ecosystems. It can do so if requested.
9.	Develop assessment and valuation methodologies for the multiple benefits derived from forest biological diversity (e.g., Annex to Decision IV/7)	This is at the core of the conceptual framework of the MA, which seeks to examine the entire range of benefits provided by ecosystems and the biodiversity they contain.
10.	Review the specific indicators of forest biodiversity that have been derived by the major ongoing international processes. (e.g., Annex to Decision IV/7)	The MA will assess the state of knowledge concerning the development of indicators of biodiversity conservation, sustainable use, and the equitable sharing of benefits in order to provide guidance to countries in their selection and use of indicators.
11.	Requests the Executive Secretary to develop: (a) A set of principles for designing national-level monitoring programs and indicators; (b) A key set of standard questions and a list of available and potential indicators, covering the ecosystem, species and genetic levels, taking into account the ecosystem approach, that may be used by Parties at their national level and in national reporting and that also allow for regional and global overviews on the state and trends of biodiversity and, if possible and appropriate, any responses from policy measures; (Decision V/7: Identification assessments and Monitoring and Indicators.)	The MA will assess the state of knowledge concerning the development of indicators of biodiversity conservation, sustainable use, and the equitable sharing of benefits in order to provide guidance to countries in their selection and use of indicators.
12.	Invites the Millennium Ecosystem Assessment to incorporate the issues identified in paragraph 4 above, and to report on this matter at the seventh meeting of the Subsidiary Body on Scientific, Technical and Technological Advice; [Para 4. Promotes on the basis of the ecosystem approach a wider assessment of the interlinkages between biological diversity and climate change, in order to develop more comprehensive scientific advice to integrate biodiversity considerations into the implementation of the United Nations Framework Convention on Climate Change and its Kyoto Protocol, including: (a) The impacts of climate change on biological diversity and the impacts of biodiversity loss on climate change; (b) The potential impact on biological diversity of mitigation measures that may be carried out under the United Nations Framework Convention on Climate Change and its Kyoto Protocol, and identification of potential mitigation measures that also contribute to the conservation and sustainable	The MA will carry out the work requested in this invitation.

	CBD COP DECISIONS AND SBSTTA 6 RECOMMENDATIONS	MA PROPOSED ACTION
	use of biological diversity; (c) The potential for the conservation and sustainable use of biological diversity to contribute to climate adaptation measures;	
LESSONS FROM MANAGEMENT AND POLICY EXPERIENCES		
13.	Provide case studies of watershed, catchment, and river basin management experiences and best practices, synthesize lessons from those studies, and disseminate information through the clearinghouse and other appropriate mechanisms (e.g., Decision IV/4A)	MA response options will review best practices in these areas.
14.	Assess experiences gained in national and regional processes, identifying common elements and gaps in the existing initiatives and improving the indicators for forest biodiversity (e.g., Annex to Decision IV/7)	MA response options will review best practices in these areas.
15.	Assemble management experiences and scientific, indigenous and local information at the national and local levels to provide for the sharing of approaches and tools that lead to improved management practices with regards to forest biodiversity (e.g, Annex to Decision IV/7)	The sub-global MA assessments will provide a mechanism for this review of locally relevant approaches.
16.	Provide advice on the identification of options for the conservation and sustainable use of forest biodiversity and the mitigation of negative influences and the promotion of positive human influences on forest biodiversity (e.g., Decision IV/7.12; Annex to Decision IV/7)	This is at the core of the MA conceptual framework and will be directly addressed by the MA.
17.	Urges Parties, other Governments and relevant bodies to implement response measures to the phenomenon of coral bleaching by: (a) Identifying and instituting additional and alternative measures for securing the livelihoods of people who directly depend on coral-reef services; (b) Encouraging and supporting multidisciplinary approaches to action relating to coral-reef management research and monitoring, including the use of early-warning systems for coral bleaching, and collaborating with the International Coral Reef Initiative and the Global Coral Reef Monitoring Network; (Decision V/3 (implementation of the program of work on Marine and coastal biodiversity based on decision IV/5), SBSTTA Recommendation VI/2)	The scenarios component of the MA will assist governments in exploring various options for additional and alternative measures for securing the livelihoods of individuals dependent on sensitive ecosystems. The MA will help to identify best practices concerning coral reefs. The MA will examine the consequences of coral reef degradation for human well-being and response options for mitigating impacts and restoring reefs.
18.	Requests the Subsidiary Body on Scientific, Technical and Technological Advice to consider the impact of, and propose sustainable practices for, the harvesting of non-timber forest resources, including bush meat and living botanical resources; Requests the Executive Secretary to invite relevant organizations and forest-related bodies, institutions and processes, including criteria and indicator processes, as well as indigenous and local communities, non-governmental organizations, and other relevant stakeholders to contribute to the assessment of status and trends, including gaps and priority actions needed to address threats to forest biological diversity; (Decision V/4, Decision IV/7: (Progress report on the implementation of the program of work for forest biological diversity.)	The MA will contribute information on forests, their goods and services, biodiversity, and response options. The MA was invited by SBSTTA-6 to contribute to the assessment needs in this area.

	CBD COP DECISIONS AND SBSTTA 6 RECOMMENDATIONS	MA PROPOSED ACTION
	To provide a comprehensive analysis of status and trends of the world's agricultural biodiversity and of their underlying causes (including a focus on the goods and services agricultural biodiversity provides), as well of local knowledge of its management. Promote and develop specific assessments of additional components of agricultural biodiversity that provide ecological services, drawing upon the outputs of program element 2. This might include targeted assessments on priority areas (for example, loss of pollinators, pest management and nutrient cycling). Carry out an assessment of the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining agricultural biodiversity and agro-ecosystem services for and in support of food production and food security. Promote and develop assessments of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity referred to in Annex I to the Convention. Develop methods and techniques for assessing and monitoring the status and trends of agricultural biodiversity and other components of biodiversity in agricultural ecosystems, including: * (Decision V/5: Agricultural Biodiversity)	The MA will include such an assessment, largely synthesizing extensive research work undertaken by scientists, FAO, IPGRI, and others. Because of the Goods and Services focus of the MA, it will pay particular attention to meeting the assessment needs of components of agrobiodiversity providing ecological services. The MA will emphasize the assessment of best practices in sustaining agrobiodiversity. *These methodologies are already likely under development by FAO and IPGRI and may not be a priority for the MA
CAPACITY BUILDING		
19.	Expand research capacity to develop and assess options incorporating the applications of traditional knowledge to minimize or mitigate negative influences and to promote the positive effects (e.g., Annex to Decision IV/7)	The MA will include both local assessments and assessments conducted by indigenous peoples that will enhance capacity in these areas.
20.	Enhance the capacity of countries to implement biodiversity criteria and indicator frameworks (Decision IV/7)	The MA will provide methods and data that will enhance capacity of countries to implement biodiversity criteria and indicators.
21.	Urges the implementation of capacity-building measures for developing and implementing national and sectoral plans for the conservation and sustainable use of inland water ecosystems, including comprehensive assessments of the biological diversity of inland water ecosystems, and capacity-building programs for monitoring the implementation of the program of work and the trends in inland water biological diversity, and for information-gathering and dissemination among the riparian communities. Decision V/2, IV/4, SBSTTA Recommendation VI/3,	The core MA activities will contribute to meeting these capacity needs.
