Chapter 2

Overview of the MA Sub-global Assessments

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*This appears in Appendix A at the end of this volume.

Main Messages

The MA sub-global assessments were a key design feature of the MA. Within the MA process, the sub-global assessments complemented the global assessment, and were essential to the multiscale approach of the MA. The sub-global assessments also featured other aspects of the MA's technical design, including engagement with a full range of stakeholders at various scales and the adoption of an integrated approach involving natural and social sciences and other knowledge systems. The capacity-building objectives of the MA were also pursued in part through the sub-global assessments.

This volume presents the lessons learned and initial results from the sub-global assessments done at the local, national, and regional scales, and efforts to compare across these scales. Although many sub-global assessments are still on-going, this volume analyzes the processes pursued by the various assessments and, where possible, the substantive findings on ecosystem services and human well-being across the sub-global assessments. (Box 2.1 describes the sources of information used in writing this volume.) At the same time, this volume recognizes the constraints and challenges faced by the sub-global assessments and reflects on the outcomes of the process seen in this light. A total of 18 approved assessments and 16 associated assessments are included, covering every continent and most ecosystem types around the world. The volume takes readers from the rivers of southern Africa to the islands of the Caribbean, and from local villages in India to cities such as Stockholm.

2.1 Important MA Design Features

The sub-global assessments were a key component of the MA's technical design. This section reviews the MA's main design features with reference to the sub-global assessments, to give readers a full appreciation of the context in which the sub-global assessments were developed and undertaken.

2.1.1 An Integrated Assessment

The MA differs from sector-specific assessments undertaken in the past, such as those on climate change (IPCC 2002), global biodiversity (Heywood and Watson 1995), and ozone (UNEP 2003). After several of these assessments, the scientific community saw a need for an assessment that addressed the linkages among environmental problems, and possible solutions to these problems. In November 1998, the report *Protecting our Planet, Securing our Future: Linkages Among Global Environmental Issues and Human Needs,* prepared by a panel of 40 leading scientists, called for ''a more integrative assessment process for selected scientific issues, a process that can highlight the linkages between questions relevant to climate, biodiversity, desertification, and forest issues'' (Watson et al. 1998). The MA was designed to include an analysis of the linkages between different natural and human-induced drivers and responses, and their impact on ecosystem goods and services and human well-being.

2.1.2 A Multistakeholder Assessment

The MA was also designed to meet the needs of a range of users, namely, decision-makers who use assessment information to improve the management of ecosystems for human well-being. Key users were represented on the MA Board, including ecosystem-related international conventions, U.N. agencies, governments, nongovernmental organizations, the private sector, and local communities. Each sub-global assessment also has its own diverse set of users.

To ensure the legitimacy of the process, the MA exploratory steering committee decided not to even proceed to establish the assessment unless and until there had been a formal request for such an assessment from governments.

BOX 2.1

Sources of Information Used in Writing this Volume

Given the diversity of the sub-global assessments, as well as the fact that many were not complete at the time this report was written, the authors of this volume had to draw on a variety of sources of information when synthesizing and analyzing the experiences of the sub-global assessments. These include:

- *Formal assessment reports* from completed assessments (for example, SAfMA). Formal reports underwent a review process defined by the MA guidelines.
- *"State of the assessment" reports* from those sub-global assessments that had not yet been completed when this report was written. These averaged 30 pages each and were meant to summarize important information on the process and preliminary findings of each assessment regardless of the level of completion. The initial drafts of these reports were structured according to standardized questions developed by the Sub-global Assessment Working Group, covering all the topics and chapters in this volume; many of these reports draw on published literature and data sets. State of the assessment reports were included in the second round of review for this volume and are published online at the MA website, www.MAweb.org.
- *"Knowledge markets"* held at meetings of the Sub-global Assessment Working Group. Author teams for each chapter in this volume faced the challenge of obtaining information from all of the sub-global assessments, while individual assessment teams faced demands from multiple chapter author teams. The interactive solution to achieving a fast and effecting exchange of information was to structure a knowledge market at working group meetings. These were held in a large room, where tables were set up for each chapter team, and sub-global assessments rotated round the tables every fifteen minutes according to a schedule drawn up by the secretariat. Author teams prepared for a short but intense period of interaction with each sub-global assessment during the knowledge markets. In this volume, information from knowledge markets is cited as "KM–Name of assessment."
- *Survey questionnaires.* A number of chapter author teams e-mailed questionnaires to specific sub-global assessments to elicit further information in written form. In this volume, information from survey questionnaires is cited as "Q–Name of assessment."
- *Personal communication* through means other than knowledge markets. Personal communication—for example, through the direct participation of individuals from the various sub-global assessments in chapter teams at working group meetings—provided important additional information.

After substantial efforts, governments, through the four international conventions (CBD, UNCCD, Ramsar Convention, and CMS), took decisions in their Conferences of Parties authorizing the MA as a source of assessment input. The MA was relatively less successful at attracting the attention of the private sector and local and indigenous communities. (See Chapters 5 and 11 for discussion of engagement with communities in the sub-global assessments.)

2.1.3 A Multiscale Assessment

One of the innovations of the MA was its design as an assessment at multiple scales. While ecosystem change and biodiversity loss are of global environmental concern, and while there are global dimensions to such problems and their solutions, the sub-global dimensions are often of much greater significance. For example, the adverse effects of a given ecosystem change, such as desertification in a particular area, are more immediately felt at sub-global scales.

In light of the multiscale nature of both the issues involved and the decisions being made, it was clear early in the MA exploratory phase that a strictly ''global'' assessment would be insufficient. Causes and impacts of, as well as responses to, ecosystem change vary at different scales. Assessments at sub-global scales are needed because ecosystems are highly differentiated in space and time and because sound management requires careful local planning and action. Local assessments alone are insufficient, however, because some processes are global and because local goods, services, matter, and energy are often transferred across regions (Ayensu et al. 2000).

Chapter 4 of this volume expands on the rationale behind conducting a multiscale assessment, and includes an analysis of the benefits and the challenges of this design. For example, improved assessment findings were expected to be a major benefit of the multiscale design of the MA. The actual experience of the sub-global assessments has now shown the political ramifications of this design, including the empowerment of local communities, to be a highly significant result (findings of the Bridging Scales and Epistemologies Conference, Alexandria 2004; conference papers can be accessed at http://www.millenniumassessment.org/en/about.meetings.bridging.proceedings.aspx)

2.1.4 Bridging Knowledge Systems

The MA design also explicitly recognized that, apart from ''Western'' scientific knowledge, there are other forms of knowledge and knowledge systems that would be of relevance in any integrated assessment of ecosystem change and human well-being. Bringing in traditional knowledge and local knowledge was a key feature of a number of the sub-global assessments, particularly those undertaken with communities. The sub-global assessments were also conscious of the need to bridge disciplines (at a basic level, for example, bridging natural science and social science) and perspectives (for example, providing a bridge between nonprofit/NGO worldviews and those of the business sector). Chapter 5 examines these issues in detail.

2.2 The Sub-global Assessments and the MA Design

Consistent with the concepts underlying the MA's technical design, the sub-global assessments were encouraged to include design features such as a nested, multiscale structure and engagement with users.

2.2.1 Assessments at Various Scales

The MA design called for a set of ''nested'' assessments at various spatial scales. For example, a set of local community assessments could be nested within a broader assessment of a river basin, which in turn could be nested within a national assessment. Each of these assessments were meant to be proper assessments in their own right; local assessments, for instance, should not be merely case studies within a regional assessment, but should involve a complete assessment of conditions, trends, scenarios, and responses at the local scale, as well as engage with users as part of the assessment. (See Figure 2.1.) Several sub-global assessments incorporated a nested design into their assessment, but many relied on either case studies or users at multiple levels to achieve a multiscale effect. (See Chapters 3 and 5 for a more detailed discussion of this.)

The MA sub-global assessments included a range of assessments at various scales, from villages in India to cities such as Stockholm, from river basins in southern Africa to the large region of western China. Each of these assessments considered the MA conceptual framework, adapting it as needed to reflect the most important services and drivers, and was undertaken by local or national institutions in those locations. This multiscale approach was important because it enabled the assessment of ecological and social processes at the scale at which these processes operate, and the involvement of the relevant decision-makers and stakehold-

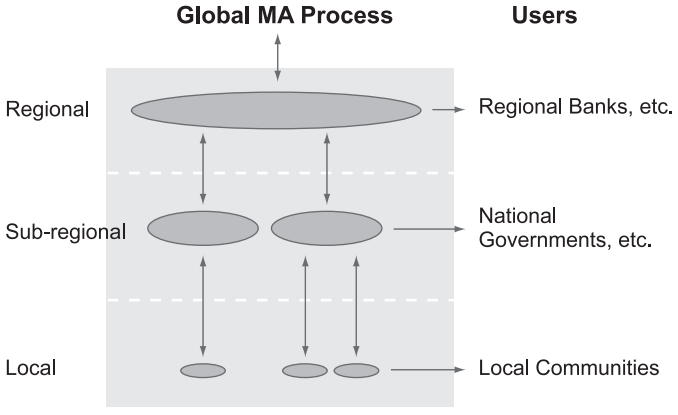

Figure 2.1. The MA's Nested, Multiscale Design. Nested sub-global assessments would consist of local assessments within the coverage of sub-regional assessments, which in turn would be in the area of a regional assessment. Any regional assessment (or, for that matter, any sub-global assessment) would be nested within the global assessment, by definition. At each scale, every sub-global assessment would directly meet the information needs of users at that scale.

ers at each scale. It also enabled analysis across sites, and the drawing of common lessons learned that might be applied in other places. Chapter 4 discusses the multiscale approach in detail, including the constraints faced by the sub-global assessments in attempting to put the full multiscale design into practice.

2.2.2 Engagement with Users: Meeting User Needs

Assessments at each scale were also meant to fully engage with stakeholders at that scale. That is to say, to be truly user-driven, an assessment at any given scale should primarily meet the needs of the users at that scale, who should be involved in defining the issues of concern for the assessment. So while the spatial ''scale'' of an assessment can often be defined in either natural or human terms (for example, the area assessed might be defined by the natural boundaries of a drainage basin or by the political boundaries of a country), it can also be thought of principally as being defined by the users of the assessment. For example, users within a well-established catchment management area would provide the principal reason to define and delineate the assessment at the scale of the catchment area.

2.2.3 A Learning Experiment

The design features described were developed at the initial MA design meetings, prior to the initiation of any sub-global assessment activities. Given some of the more innovative and experimental aspects of the MA design, it was clearly expected that the MA experience in general, and the sub-global assessments in particular, would be a learning process for all involved. Some individuals involved in the MA design meetings subsequently became directly involved in the work of a sub-global assessment. Sub-global assessments took the MA conceptual framework, along with the criteria for becoming a sub-global assessment, as the starting points for undertaking an assessment. Thus sub-global assessments became an experiment in applying the MA conceptual framework in widely varying environmental and socioeconomic contexts. In some cases, tensions quickly arose between the desire to follow the MA design guidelines and meeting a diverse set of specific user needs, which was also an MA priority.

2.2.4 A Process to Build Assessment Capacity

One of the main objectives of the MA was to build capacity to undertake integrated ecosystem assessments and to use information from such assessments. The sub-global assessments were a key element in the strategy to achieve this capacity-building objective—technical experts and users involved in each sub-global assessment would naturally develop improved capacity from the experience of undertaking the assessment. The sub-global assessments made use of the MA network of experts, experience-sharing opportunities, and much ''self-help'' to overcome technical hurdles. Most assessments also held regular workshops and feedback sessions with decision-makers and other stakeholders to build further capacity for understanding the links between ecosystem services and human well-being.

2.3 The Sub-global Assessment Process in the MA

Once the need to have a set of sub-global assessments was identified, the MA exploratory steering committee recommended that a separate working group be established for this purpose, in addition to the three working groups focused on the global assessment. This working group eventually included two members of the MA Panel who acted as co-chairs, a technical support unit from the MA Secretariat, key individuals from the various sub-global assessments, and a number of additional independent participants interested in the issues addressed by these assessments.

From the beginning, even within the MA, there were different understandings and expectations of what sub-global assessments were meant to achieve. This related in part to the differences and the varying needs of users and decision-makers at the different scales the global and sub-global components of the MA sought to address. The evolution of the MA design over a three-year period with different, though overlapping, groups of people involved also contributed to the differences in understandings and expectations.

Those oriented to global level issues saw sub-global assessments primarily as a vehicle for enriching global assessment findings and for getting feedback from finer scales. Sub-global assessments, for their part, understood their role as primarily addressing the issues and needs of users and audiences at their respective levels. To help ensure and facilitate the links and flow of information between the global and sub-global components of the MA, a team of three individuals was constituted as a core ''linkage'' team, who worked together with a wider network of individuals who were involved in both the global and sub-global assessments in various capacities.

2.3.1 The Initial Approach

After an open solicitation of proposals for assessments in 2000, an expert group recommended that the MA seek to establish clusters in Southern Africa, Southeast Asia, Europe, and Central America (MA 2001), based on expressions of interest that had been received. The MA Board approved this regional focus at its first meeting in July 2001, and planning workshops were held in each region in 2001 and early 2002. A special effort was made to identify key individuals and institutions from these regions, and to invite them to the initial design workshops, in attempts to catalyze nested clusters of assessments in these regions.

2.3.2 The Bottom-up Approach and Selection Criteria

By the time of the January 2002 meeting of the MA Board, only one of the initial focal regions—Southern Africa—was in the process of successfully launching a cluster of assessments. It became evident that it would be difficult to develop full nested assessments in all of the chosen focal regions. At the same time, the MA process generated a considerable amount of interest from a number of existing and

proposed initiatives around the world, and there were a growing number of requests to join the MA. One example was the set of on-going local assessments conducted in India by the Indian Institute of Science.

Sub-global participants in the MA design meetings and the co-chairs of the MA Sub-Global Assessment Working Group were by then arguing that a ''bottom-up'' process of establishing the assessments would be more effective, suggesting that MA funds would be best used as ''seed grants'' for a larger number of assessments. Those assessments could then seek their own larger grants from sources other than the MA, resulting, it was hoped, in a better leveraging of MA resources and more solid grounding of the assessments in regions demonstrating the greatest interest among donors and experts.

At the same time, it was viewed as important that all assessments involved in the MA should meet some minimum standards, and make a contribution to the overall MA process. The solution was to establish a formal approval process and a set of criteria that all sub-global assessments should meet. These criteria were:

- use of the MA conceptual framework,
- user engagement, and
- adherence to MA policies (see MA 2002).

The benefits of the bottom-up approach included a greater number of assessments with established user groups meeting existing needs; a wider audience for the MA in a greater number of regions; a more diverse pool of people (along with their experiences, methodologies, and worldviews) collaborating within the sub-global working group; and a higher likelihood of use of assessment results in follow-up action and decision-making. The costs of this approach included few assessments with sufficient funding to complete their work (see sections on funding below); interrupted assessment processes and longer timeframes as funding was secured in a piecemeal fashion; less MA control over sub-global assessment design and use of the MA conceptual framework; and a lack of assessments in some key regions and ecosystems.

2.3.3 Funding for the Sub-global Assessments

The MA project document allocated $7.9 million (37% of the overall project budget) to the sub-global assessments and related support. Of this amount, $3.5 million was in the form of commitments for co-financing or in-kind support to specific sub-global assessments. For example, $1.5 million was provided by the government of China for the western China sub-global assessment; $400,000 was in the form of a grant provided by the government of Norway for the Southern Africa sub-global assessment, to match the $500,000 provided by the MA to SAfMA. Thus, excluding co-financing and in-kind support earmarked for specific assessments during the initial project design, $4.4 million was available to support other sub-global assessments, working group meetings and exchange activities, publications costs, and panel and secretariat coordination functions. At the same time, not all of the $3.5 million committed to specific assessments was ultimately made available to those assessments. The actual amounts of funding given in grants to the sub-global assessments are described in the sections below.

2.3.4 Seed Funding to Develop Assessments

A challenge faced by many of the proposed assessments was to secure funding for their assessment work via traditional mechanisms such as international and national funding programs and donors. The ''seed grants'' provided by the Sub-global Working Group to many assessment initiatives in their early stages were intended to enable assessment teams to hold design meetings with relevant stakeholders and put together proposals seeking funding for their full slate of assessment activities.

The key criteria used for the approval of seed funding included:

- institutional capacity,
- co-financing, and
- contribution to the MA process and users.

A total of 13 candidate assessments received an average of $16,000 in seed funding during the first two years of the MA. Of these, 8 assessments obtained formal approval from the MA Board as full components of the MA. A number of assessments also obtained formal approval without having received seed funding (see the section below on the category of approved assessments).

2.3.5 Core Funding for Full Assessment Activities

Apart from SAfMA, which received $900,000 (as noted earlier), ten sub-global assessments received grants averaging $70,000 each. Thus almost all sub-global assessments have needed to raise additional funds from sources other than the MA.

While all sub-global assessments benefited from significant in-kind contributions from collaborating agencies and participating governments—notably the time of technical staff, facilities, support for meetings, etc.—securing donor support for full funding of planned assessment activities has proven to be a challenge for many of the sub-global assessments. This has raised the question of whether it would have been more effective to use MA funds to support fewer but completely nested multiscale assessments such as in Southern Africa. At the time the MA funding became available, however, the other initial focal regions identified were not ready to launch fully nested assessments, while the funds available would have supported only one other set of assessments like SAfMA.

2.3.6 Approved Assessments and Associated Assessments

The MA was designed as a process with a limited duration, expected to conclude in 2005. This had implications for the sub-global assessments and their contributions to the overall synthesis of findings and lessons learned. The sub-global assessments were requested to provide a ''state of the assessment'' or final report by December 2003, depending on the extent to which each was completed. Many assessments that had been classified as ''candidate assessments,'' with the expectation that they would graduate to become ''approved

assessments,'' had still not progressed by this late date. In addition, new assessments were still interested in joining the MA with no expectation of contributing substantially to this volume, and many of these did not meet all the criteria that had been established for formal approval. (In addition to access to the technical resources and networks, the perceived increase in credibility, or even political advantage, from association with the MA was often one of the motivations for joining the MA process.)

The decision was thus taken to establish a separate category of ''associated'' assessments, based on a set of modified criteria. (See Table 2.1.) All candidate assessments were absorbed into this new category. Association provided the platform for these assessments to continue to be involved with the MA, through attendance at working group meetings, access to networks and technical resources, some limited funding for specific purposes, etc.

2.4 Participating Sub-global Assessments

The sub-global assessment process involved a large number of assessments covering all continents around the globe. A total of 18 assessments were approved by the MA Board, and as of March 2005 all but one (Norway) are complete or currently under way. An additional 16 assessments became associated assessments. Many associated assessments have made significant contributions to the process and to conclusions presented in this volume, and can be expected to make substantial additional contributions to our understanding after the MA process is complete. The complete list of approved assessments is presented in Appendix 2.1, while the list of associated assessments is in Appendix 2.2, at the end of this chapter. Brief descriptions of individual sub-global assessments can be found in Appendix B at the end of this volume.

2.4.1 Geographical Coverage

The assessments taking part in the MA process have broad geographical coverage, and are found in all the main continents. Chapter 6 provides insights on how the various sub-global assessments were initiated. The set of sub-global assessments at the first Sub-global Working Group meeting was notable in that there were several regional gaps in global coverage by the assessments. There were no assessments in either North or Central America, only two in South America, and none in East or West Africa. Because the process relied on a ''bottom-up'' generation of assessment proposals, and because the donor funds available to support the establishment of assessments could only be used in developing countries, there was only partial control over the final distribution of assessments. However, the MA proactively sought to fill some of the gaps and recruited local organizations, such as RIDES in Chile, to initiate assessments in their region. It should be noted that there was never a goal for the group of sub-global assessments to be representative of the world's regions or ecosystems. Assessments are under way in most geographic regions, although the number of assessments in developing countries outnumbers those in developed countries. (See the introductory section ''MA Objectives, Focus, and Approach'' for a map showing the location of the MA sub-global assessments worldwide.)

2.4.2 Ecosystem Coverage

The ecosystem types covered by the sub-global assessments—based on the MA system definitions (MA 2003)—include all systems except polar and deep water marine ecosystems. The MA sub-global assessments were not intended to represent a scientific sample of global ecosystems. For many ecosystem processes, more accurate and consis-

Table 2.1. Selection Criteria for Approved and Associated Assessments

MA Selection Criteria	Approved Assessments	Associated Assessments
Assess ecosystem services and the consequences of ecosystem change for human well-being	essential	examine the linkages between ecosystems and human well-being
Include assessment components of conditions/ trends, scenarios, and responses	essential	not necessarily all components
Multiscale interactions	nested design an important priority	preferable, but not strictly necessary
Multisectoral and interdisciplinary approach	essential	essential
User involvement	essential	essential
Timing	contribute to MA by end-2003	no time bar
Peer review	follow MA guidelines	preferable
Transparency	follow MA guidelines	make information on governance and financing publicly available
Data management and access	follow MA guidelines	provide information on data sources used
Intellectual property rights	follow MA guidelines	follow international practice
Evaluation	participate in MA evaluation	not required
Accession procedure	approval by MA Board	approval by MA director in consultation with Sub-global Working Group co-chairs

tent information is available from remote sensing data or existing global monitoring processes, than could be obtained through even a far larger sample of sub-global assessments than the MA could conceive of supporting. Nor were the sub-global assessments intended to focus only on areas facing the most significant problems related to ecosystems. One assumption implicit in the MA was that better information on ecosystem services, and the consequences of changes in those services, could enhance decision-making concerning the management of ecosystems, whether or not the systems were already facing serious problems of resource degradation. Figure 2.2 in Appendix A compares the WWF ecoregions with the areas of coverage of selected sub-global assessments. (See Objectives, Focus, and Approach for a summary of the ecosystem coverage of the MA sub-global assessments worldwide.)

The ecoregions sampled by the various sub-global assessments can be expected to have had a significant influence on the types of ecosystem services examined. User needs and the issues specific to each location were highly important in determining the services assessed. However, the very nature of the MA, with its focus on human well-being, does place a significant emphasis on basic ecosystem services that are important for human survival such as water supply and food production. This interplay between a diversity of ecosystems and the common requirements for human survival is reflected in the ecosystem services selected in various sub-global asssessments. (See Appendixes 2.1 and 2.2 for the main ecosystem services assessed, and for short-hand references used throughout this volume.)

References

Ayensu, E., D.R. Claasen, M. Collins, A. Dearing, L. Fresco, et al. 2000: International ecosystem assessment. *Science,* **286,** 685–686.

Heywood, V.H. and R.T. Watson (eds.), 1995: *Global Biodiversity Assessment*. Cambridge University Press, Cambridge, UK.

IPCC, 2002: *Climate Change 2001: Synthesis Report*. Cambridge University Press, Cambridge, UK.

MA (Millennium Ecosystem Assessment), 2001: *Millennium Ecosystem Assessment Sub-Global Component: Purpose, Structure and Protocols*.

MA, 2002: *Sub-global Assessment Selection Process and Criteria*. Prepared by the MA Secretariat and approved by the MA Board, January 2002. Available at www.MAweb.org.

MA, 2003: *Ecosystems and Human Well-Being: A Framework for Assessment*. Island Press, Washington, DC, 245 pp. Available at www.MAweb.org.

UNEP, 2003: *Environmental Effects of Ozone Depletion and its Interactions with Climate Change: 2002 Assessment*. UNEP, Nairobi, 183 pp.

Reid, W.V., 2000: Ecosystem data to guide hard choices. *Issues in Science and Technology,* **16(3),** 37–44.

Watson, R.T., J.A. Dixon, S.P. Hamburg, A.C. Janetos, and R.H. Moss, 1998: *Protecting our Planet—Securing our Future*. United Nations Environment Programme, U.S. National Aeronautics and Space Administration, World Bank, Washington, DC.

Appendix 2.1. Approved Assessments (short names for assessments in parentheses)

Approved Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Altai-Sayan Ecoregion (Altai-Sayan)	Transboundary ecoregion in Altai and Sayan mountain ranges in Russia, Mongolia, Kazakhstan, and China	WWF Russia Programme Office, Moscow, Russia	national and regional governments local communities	dryland forest inland water mountain	food and grazing timber and forest products biodiversity wind power tourism	ecoregion national basin local	2003–05
San Pedro de Atacama, Chile (San Pedro de Atacama)	Salar de Atacama salt marsh in the northern desert of Chile	RIDES, Santiago, Chile	indigenous people government agencies tour operators mining companies	inland water dryland	food water biodiversity runoff regulation cultural others	local	2003–05
Caribbean Sea	Regional assessment of marine and island systems in the Caribbean	University of the West Indies, St. Augustine, Trinidad	governments intergovernmental processes	coastal island marine	food water biodiversity cultural	regional	2003–05
Coastal British Columbia, Canada (Coastal BC)	Northern and central coastal region of British Columbia	Coast Information Team, Victoria, BC, Canada	logging companies indigenous groups government agencies	coastal inland water forest mountain	food biodiversity fiber and timber runoff regulation cultural	regional sub-national	2002–04

Appendix 2.1. ***continued***

Approved Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Bajo Chirripó, Costa Rica (Bajo Chirripó)	Chirripó River Basin–Caribbean slope	Asociacion Ixacavaa, San Jose, Costa Rica	local communities	cultivated forest inland water	food water biodiversity fiber and timber cultural others	local	2003–05
Forest and agro-ecosystem trade-offs in the humid tropics (Tropical Forest Margins)	Cross-cutting assessment of sites in the forest margins of the humid tropics in South America, Africa, and Southeast Asia	Alternatives to Slash-and-Burn Programme, hosted by the World Agro-forestry Centre, Nairobi, Kenya	farmers and communities policy-makers	forest cultivated	food water biodiversity carbon sequestration fiber and timber runoff regulation others	local benchmark sites ecoregion national	2003–05
India local villages (India Local)	Local villages in Karnataka and Maharashtra states in India	Center for Ecological Sciences, Bangalore, India	village councils government agencies NGOs	cultivated forest inland water	food water fuel and energy biodiversity fiber and timber runoff regulation cultural others	local	2000–04
Glömma Basin, Norway (Norway)	Pilot assessment in the Glömma Basin in southern Norway	Norwegian Institute for Nature Research	government agencies private sector	cultivated forest inland water mountain	recreational accessibility of landscape agricultural production hunt yields–moose and reindeer timber hydroelectric power	basin	2001–04
Papua New Guinea (PNG)	Coastal, small island, and coral reef systems nationwide, with a focus on Milne Bay Province	Australian National University and University of Papua New Guinea	local communities government agencies NGOs UNDP	coastal cultivated island marine	food water fuel and energy biodiversity fiber and timber runoff regulation cultural others	national provincial local community	2002–07

Appendix 2.1. ***continued***

Approved Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Vilcanota, Peru (Vilcanota)	Vilcanota region	ANDES, Cusco, Peru	local communities NGOs government agencies research organizations	cultivated dryland mountain	food water runoff regulation biodiversity tourism cultural others	sub-regional local	2003–05
Laguna Lake Basin, Philippines (Laguna Lake Basin)	Laguna Lake Basin near Metro Manila	University of the Philippines, Los Banos	regulatory and government agencies scientific community NGOs	forest inland water cultivated	food water biodiversity carbon sequestration cultural others	basin local	2002–05
Portugal	National assessment with case studies at the basin level (Mondego Basin and Mira Basin) and the local level (Sistelo, Quinta da França, Herdade de Ribeira Abaixo, and Castro Verde)	Center for Environmental Biology, Faculty of Sciences of the University of Lisbon, Portugal	government agencies private sector NGOs scientific community local communities	coastal cultivated dryland forest inland water island marine mountain urban	food water biodiversity carbon sequestration fiber and timber runoff regulation cultural others	national basin local	2003–05
São Paulo Green Belt, Brazil (São Paulo)	São Paulo City Green Belt Biosphere Reserve	Instituto Florestal, São Paulo, Brazil	government agencies and public offices local communities private sector scientific community NGOs media international organizations	coastal cultivated forest inland water urban	biodiversity freshwater Food security Timber and other forest resources climate regulation runoff regulation carbon sequestration sustainable tourism and other cultural benefits	local river basin	2003 (preliminary assessment) 2005–07 (full assessment)

Appendix 2.1. ***continued***

Approved Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Southern Africa Millennium Assessment (SAfMA)	Regional assessment of southern Africa (SAfMA Regional) Gariep Basin (SAfMA Gariep) Zambezi Basin (SAfMA Zambezi) Local assessments in Gariep Basin (SAfMA Livelihoods) Gorongosa-Marromeu (SAfMA G-M)	University of Zimbabwe, Harare	government agencies scientific community NGOs local communities	coastal cultivated dryland forest inland water marine urban	food water fuel and energy biodiversity fiber and timber cultural others	regional basin local	2001–04
Sweden: Stockholm Urban and Kristianstad Wetlands (Sweden SU and Sweden KW)	Local assessments: Stockholm Urban Assessment and Kristianstad Wetlands	Stockholm University, Sweden	local communities government agencies	cultivated inland water urban	food water biodiversity carbon sequestration fiber and timber runoff regulation cultural others	local	2001–05
Northern Range of Trinidad (Northern Range)	Northern Range	The Cropper Foundation, Port of Spain, Trinidad	government agencies local communities technical cooperation agencies research organizations private sector NGOs/CBOs	coastal forest inland water mountain	water timber and non-wood forest products biodiversity cultural food runoff regulation land space for housing and agriculture minerals	sub-national local (selected communities)	2003–05
Downstream Mekong Wetlands, Viet Nam (Downstream Mekong)	Downstream Mekong wetlands	Institute of Geography, Hanoi, Viet Nam	local communities government agencies and decision-makers NGOs	coastal cultivated inland water	food water fuel and energy biodiversity carbon sequestration fiber and timber runoff regulation cultural others	local	2002–04
Western China	Entire western region of China, with six typical sites	Institute of Geographical Sciences and Natural Resources Research, Beijing, China	government agencies at national and local levels	cultivated dryland forest inland water mountain	food water biodiversity carbon sequestration runoff regulation others	regional local	2002–04

Appendix 2.2. Associated Assessments (short names for assessments in parentheses)

Associated Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Alaskan Boreal Forest (Alaska)	Yukon River Basin (Interior Alaska and southern Yukon Territories)	University of Alaska Fairbanks	local communities fire managers (Bureau of Land Management Alaska Fire Service and Alaska Division of Forestry)	Forest Inland water	climate regulation food and fiber cultural heritage maintenance of disturbance regime nutrient cycling and primary production	transnational (portions of U.S. and Canada) regional (Yukon River Basin) local (selected communities and adjacent forests)	2003–07
Arafura and Timor Seas	Indonesia, Timor-Leste, and Australia	Arafura and Timor Seas Experts Forum	governments indigenous communities	coastal island marine	fish/food security biodiversity carbon sequestration coastal livelihoods	regional national local	2003–04
Argentine Pampas, Argentina (Argentine Pampas)	Argentine Pampas	National Institute of Agricultural Technology and CONICET, Argentina	national and regional government local community	cultivated	food water purification soil formation nutrient cycling habitat provision cultural and aesthetic	transnational basin regional local	2003–2005/06
Central Asia Mountains	Pamir and Tianshan mountain ranges	Central Asia Regional Environment Centre, Almaty, Kazakhstan	national and local governments local communities regional and international organizations NGOs and other civil society organizations mass media	mountain	food water biodiversity soil others	regional basin local	2003–06
Coffee-growing regions of Colombia (Colombia)	Coffee-growing regions in the Colombian Andes	Alexander von Humboldt Institute and CENICAFE, Colombia	government agencies National Federation of Coffee-growers regional environmental authorities	cultivated mountain	food water biodiversity cultural	sub-national local	2003–07
Eastern Himalayas	Northeast India	Ashoka Trust for Research in Ecology and the Environment, India	local government local community	forest mountain	food water fuel and energy biodiversity cultural	sub-national local	2002–05

Appendix 2.2. ***continued***

Associated Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Sinai, Egypt (Sinai)	Sinai Peninsula, Egypt	Suez Canal University, Ismailia, Egypt; with UNEP Regional Office for West Asia	Bedouins government agencies developers research institutions	dryland mountain	minerals, marble, gravel biodiversity medicinal plants runoff regulation cultural others	local	2003–07
Fiji	Suva Coral Coast Gau	University of the South Pacific, Suva, Fiji	local government and development agencies	coastal island	food water fuelwood building materials others	local	2004–06
Hindu Kush–Himalayas (HKH Mountains)	Afganistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal , Pakistan	International Centre for Integrated Mountain Development, Nepal	national and local governments national and international agencies	inland water mountain	water and hydrology biodiversity land and soil cultural and spiritual	regional basin local	2003–06
Indonesia	Jakarta Bay (Pulau Seribu) Bunaken National Park, Sulawesi	Ministry of Environment	local government and NGOs	coastal island marine	fish/food security biodiversity coastal livelihoods	local	2003–04
Indian Urban Resource (India Urban)	Western Ghats, with focus on Pune-Bombay belt and Madurai	RANWA, Pune, India	local government- NGOs local community research institutions	urban	food water fuel and energy biodiversity carbon sequestration cultural others	sub-national local	2002–04
Tafilalt Oasis, Morocco (Tafilalt Oasis)	Tafilalt Oasis, Morocco	National Environmental Observatory, State Secretary of the Environment, Morocco	local communities NGOs national government research institutions	cultivated dryland	agricultural products fresh water nutrient cycling climate and disease regulation cultural	sub-national local	2004–07

Appendix 2.2. ***continued***

Associated Assessment	Location	Coordinating Institution	Users	Ecosystem Types	Ecosystem Services	Scales	Time Frame
Northern Australia Floodplains	Along the Alligator River, whose catchments encompass much of Kakadu National Park, around 200 km east of Darwin	Environmental Research Institute of the Supervising Scientist (Federal Department of Environment and Heritage), in collaboration with local landholders	park managers local community scientists	inland water	food water biodiversity runoff regulation cultural others	regional catchment sub-catchment	2003–05
Assir National Park, Saudi Arabia (Assir National Park)	Assir National Park in Assir Province	Government of Saudi Arabia, Presidency of Meteorology and Environment; with UNEP Regional Office for West Asia	local community government agencies scientific community tourism businesses	cultivated forest mountain	agricultural production grazing flood control cultural	sub-regional local	2003–06
Trade, Poverty, and the Environment	Chile, China, India, Madagascar, Mexico, South Africa, and Viet Nam	WWF's Macroeconomics Programme Office	business civil society governments international bodies	coastal cultivated drylands forest inland water marine mountain	agricultural production cultural fresh water	international regional national local	2002–2005
Northern Highlands Lake District, Wisconsin, United States (Wisconsin)	Northern Highlands Lake District	University of Wisconsin-Madison	local community government agencies scientific community	forest inland water	fresh water fiber and timber regulation of water, air quality, and climate spiritual and religious values, aesthetics, recreation and tourism	regional (many large watersheds) larger watersheds (many lakes) watersheds of individual lakes	2000 on (no end date at time of writing)