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**Third ad hoc intergovernmental and multi-stakeholder
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on biodiversity and ecosystem services**
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**Analysis of the assessment landscape for biodiversity and ecosystem
services****Note by the secretariat****Addendum****Executive summary**

1. Assessments are critical evaluations of information designed to guide decision-making on complex issues. They are communication processes that share many important features irrespective of topic or discipline, making generalizations possible and providing common solutions for common concerns. Effective assessments are conducted by credible groups of experts who bring a wide range of relevant experience and expertise to bear on the issues being assessed, synthesizing broadly diverse information into useful summaries that indicate areas of general agreement (often indicating degrees of certainty) and areas in which further investigation is required. In today's complex world, assessments provide an important step in environmental decision-making, linking science to policy. The paper reviews the social process that organizes, evaluates, integrates and presents expert knowledge relevant to biodiversity and ecosystem services in ways that inform decision-making, policies and actions.
2. The 16 assessments reviewed were selected to provide a variety of approaches, scales and links to policy. Based on these reviews, objective lessons have been drawn that could be applied to decisions on a possible intergovernmental platform on biodiversity and ecosystem services.
3. The landscape of assessments is vast, but all assessments need to communicate objectively with a broad range of audiences, especially decision makers; draw a fine line between being policy-prescriptive and policy-relevant; draw information from the most authoritative sources; ensure that the science is peer reviewed in a transparent manner; deal with a variety of geographical scales, while providing advice or policy options that would be relevant to all; tackle issues that include various degrees of uncertainty; include countries or regions with varying degrees of capacity to contribute; ensure that all appropriate stakeholders are involved; and be responsible to sponsors yet maintain scientific independence. This is a daunting task, especially when carried out by contributors who are working on a largely voluntary basis.
4. Key conclusions from this review include the following:
 - (a) *Scales*: Biodiversity and ecosystem services are relevant at multiple scales, from the very local to the global. This argues against favouring any particular scale, but rather recognizing the advantages of working at multiple scales and across scales. The use of coupled global and subglobal

assessments needs to be further explored as a means of understanding the cross-scale issues, promoting capacity-building at the national level and enhancing both North-South and South-South cooperation. A potential platform would need to be able to work at multiple scales, or at least be relevant to them;

(b) *Themes and focus:* Each of the seven main multilateral environmental agreements related to biodiversity and ecosystem services has a legitimate need for its own assessments, tackling issues specific to the respective agreement. All are relevant to biodiversity and ecosystem services, however, and would benefit from using the same general themes, language and conceptual frameworks. Other agreements, such as those dealing with trade, health and security, may also prepare assessments that should include biodiversity and ecosystem service aspects. This suggests that a potential platform could play a role in providing input regarding biodiversity and ecosystem services to assessments and policy processes on many topics and at multiple scales;

(c) *Ecosystem services and biodiversity:* Biodiversity, as defined by the Convention on Biological Diversity, is not always easy to quantify and communicate to non-specialists. One result is that it is defined in many ways, often confined to simply its dimensions relating to species. The concept of “ecosystem services”, first developed in the 1970s, was popularized by the Millennium Ecosystem Assessment. It reflects the fact that people are interested in biodiversity, especially because of the benefits derived from ecosystem services. This way of considering the issue has proved to be useful, having been adopted by such international forums as the United Nations Framework Convention on Climate Change, applied in the study “The economics of ecosystems and biodiversity” and widely taken up at the national level. It stands as a good example of how a conceptual framework developed for an assessment can have a wider impact;

(d) *Periodicity and time frame:* The most useful assessments generate on a regular basis a variety of products that are prepared quickly but are highly relevant, with a major product produced once every four or five years. Such assessments are essential to tracking changes in important parameters over time and can evolve to meet emerging issues. One-off assessments of broad issues are in some ways less valuable than assessments that are repeated over time, as the latter facilitate the assessment of trends and the effectiveness of policies. Ad hoc investigations into specific issues that are not being routinely monitored may, however, be the only way to deal with emerging environmental issues, providing insights that may not arise from broader assessments;

(e) *The authorizing environment and legitimacy* of assessments is variable. Relatively few are specifically called for by the multilateral environmental agreement that they are seeking to influence; the *Global Biodiversity Outlook* report process being a notable exception. At the regional or continental levels, the *Africa Environment Outlook* report process enjoys extremely strong government support through the African Ministerial Conference on the Environment. National assessments often are prepared by or for agencies of the Governments involved, giving them a high probability of being policy-relevant. Many assessments prepared by intergovernmental organizations such as the Food and Agriculture Organization of the United Nations and the United Nations Environment Programme, or independently such as the Millennium Ecosystem Assessment or the Red List of the International Union for Conservation of Nature and Natural Resources, have broad applications even without a direct link to a multilateral environmental assessment;

(f) *Scientific credibility* across assessments is also variable. No standard criteria have been adopted for the selection of scientists and peer review of outputs. Scientific credibility depends on the quality of the scientists involved. Often, the scientists have been self-selected and the voluntary nature of their contribution may have limited the pool of expertise available. Enhancing the scientific credibility of assessments should be considered a high priority, involving capacity-building and a thoughtful approach to selecting the expertise to be involved in contributing to the assessment and its peer review (which must be a transparent process). Many assessments represent a consensus perspective, but the uncertainties inherent in natural and social systems need to be recognized; communicating levels of certainty to decision makers (and often the public) who seek absolute certainty will remain a significant challenge. Assessments ideally should include advice on adapting rapidly to changing conditions or new research. A potential platform could include the capacity to undertake rapid assessment of emerging and potentially serious changes in the condition of the biosphere, providing immediate insights and leading to subsequent more detailed assessment;

(g) *Policy impact and relevance:* The assessments prepared to date have had variable impacts on the decision-making processes of the multilateral environmental agreements, with the Intergovernmental Panel on Climate Change being the most influential in this regard. Judging by recent criticisms, however, even the Panel’s results have been called into question. Assessments that provide data or information that can be used in various ways can have considerable indirect policy impact,

especially when the data are presented objectively and packaged for multiple uses. At the national level, some processes (especially the preparation of national biodiversity strategies and action plans) have proven to be highly influential, especially when the contributing scientists were of high reputation and were selected by Governments (although Governments did not select the scientists involved in the Intergovernmental Panel on Climate Change). A formal framework for assessing policy impact and relevance should be included as part of any assessment, requiring targets included in the assessment to be clearly defined and measurable;

(h) *Stakeholder involvement* is highly variable and a significant challenge, given the diversity of political and disciplinary perspectives. Improving the involvement of appropriate stakeholders at all assessment stages would be a valuable contribution to developing and communicating key messages and increasing a sense of ownership and understanding. Stakeholder involvement needs careful management, however, beginning with the selection of participants in the assessment and a clear definition of their role. This also implies that effective assessment processes will involve expertise in social learning and facilitation;

(i) *Conceptual framework*: Each assessment uses or develops its own conceptual framework, methodologies, indicators and databases (although often building on general frameworks, especially the so-called DPSIR – driving forces, pressure, state, impact and responses – framework). The variability in how the general frameworks are applied may make it more difficult to exchange information and reduce the results' usefulness across the multilateral environmental agreements and relevant United Nations agencies. Many assessments are relatively weak in terms of social science, demonstrating the importance of a multidisciplinary conceptual framework. The International Council for Science programme on ecosystem change and society is designed to help to fill this gap;

(j) *Data used*: Most assessments draw from peer-reviewed literature, data provided by Governments or authoritative research institutions, expert opinion and other assessments. Assessments rich in data, such as the Global Forest Resources Assessment programme of the Food and Agriculture Organization of the United Nations, are especially useful because their data can be applied in many ways. The sheer volume of data renders synthesis more difficult, but all the more necessary. Scientific data are not immune to attack; indeed, the scientific method is constantly seeking to improve the quality of data or their interpretation. That said, authoritative sources of data can provide a consistent foundation of information and a potential platform should seek to base its work on authoritative databases on biodiversity and ecosystem services, perhaps in collaboration with such institutions as the Group on Earth Observations Biodiversity Observation Network, the Global Biodiversity Information Facility, the Red List and the World Conservation Monitoring Centre. Closer association between assessment bodies and the growing numbers of centres of scientific synthesis could be mutually beneficial. A challenge for many assessments is the use of qualitative information, much of which may come from non-scientists, such as local and indigenous peoples. If these stakeholders are to be involved, however, ways of using their knowledge will need to be found, along with means of undertaking appropriate peer review. The Southern African Millennium Ecosystem Assessment illustrates the value of such an approach;

(k) *Communication to key audiences*: Few assessments have built in a sufficient outreach capacity to ensure that the results of the assessment reach the users whose decisions it seeks to inform. This communication needs to be based on strong scientific credibility, as indicated by the recent major problems suffered by the Intergovernmental Panel on Climate Change as a result of relatively minor issues. While no assessment process can maintain its credibility if perceived to be advocating particular positions, effective outreach of scientific findings remains an important element of any assessment and will typically require support for several years following the publication of the main assessment report. The regular production of more frequent, issue-specific reports can help to maintain a public profile;

(l) *Capacity-building*: Given that the strength of assessments depends on the quality of the expertise involved in their preparation, efforts to build capacity to contribute to the preparation of assessments is often accorded high priority. By its resolution 63/220 of 19 December 2008, the General Assembly highlighted the importance of building scientific capacity in developing countries. The ideal would be to enable the participation in global and regional assessments of any country that wished to contribute. A significant effort to build the capacity to do so may be required. At the national level, most assessments already involve local experts, but further capacity-building efforts remain necessary in at least some cases;

(m) *Institutions for assessments*: The most effective assessments have tended to be those with an institutional home. Those lacking a permanent, or at least semi-permanent, home are at a significant disadvantage, at least in follow-up and promotion. That said, a potential platform may be seen to be, at least in part, a follow-up to the Millennium Ecosystem Assessment. If established, the platform would stand as an example of a new institution emerging from an assessment, and subsequently also providing input on biodiversity and ecosystem services to other assessments and policy processes. In any case, institutions that include assessments among their tasks will be more attractive to funding sources if they successfully tackle the challenges identified above.
