Global Biodiversity Assessment

The *Global Biodiversity Assessment* -- an independent, critical peer-reviewed, scientific analysis of all the current issues, theories and views regarding biodiversity, viewed from a global perspective -- was initiated in May 1993 and published for the United Nations Environment Programme (UNEP) by Cambridge University Press in November 1995 with a formal launch at the second Conference of the Parties held that month in Jakarta, Indonesia.

The *Assessment* is divided into the following sections:

- Introduction
- Characterization of biodiversity
- Magnitude and distribution of biodiversity
- Generation, maintenance and loss of biodiversity
- Biodiversity and ecosystem function basic principles
- Biodiversity and ecosystem function biome analyses
- Inventorying and monitoring of biodiversity
- The resource basis for biodiversity assessments
- Data and information management and communication
- Biotechnology
- Human influences on biodiversity

From 1993 through 1995, a group of experts from World Resources Institute -- appointed to the ***Global Biodiversity Assessment*** Steering Committee -- helped develop, write and review contributions to the Assessment. The Assessment involved thirteen teams of experts who worked with some 300 authors from over 50 countries who contributed to the report. In addition several hundred scientists from more than 80 countries and covering many different disciplines in the biological, economic and social sciences peer-reviewed various parts of the text.

- Economic values of biodiversity, and
- Measures for conservation of biodiversity and sustainable use of its components.

A short ***Global Biodiversity Assessment Summary for Policy-Makers*** was also produced, highlighting the main points that are likely to have significance for those formulating policy.

The *Assessment* and the *Summary* are not available online but information about obtaining copies of both are available by searching the Cambridge University Press online catalogue. The following is the UNEP press statement announcing the release of the *Global Biodiversity Assessment*.

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14 November 1995

United Nations Press Release HE/916

UNEP RELEASES FIRST GLOBAL BIODIVERSITY ASSESSMENT REPORT

JAKARTA, 14 November (UNEP) -- The United Nations Environment Programme (UNEP) today launched the "Global Biodiversity Assessment" report, at the ministerial segment of the second session of the Conference of the parties to the Convention on Biological Diversity.

The 1,140-page report is the most comprehensive analysis of the science of biological diversity ever attempted. Funded by the Global Environment Facility (GEF) and by UNEP, this independent and peer-reviewed assessment is the work of over 1,500 scientists and experts from all parts of the world.

The Assessment concludes that the Earth's biological resources are under serious threat. The damage being done today -- largely as a result of human activities -- will limit the range of options that people will have in the future. In addition, little progress has been made in establishing the scientific foundations needed for devising effective policies for conserving and benefiting from biological diversity and its components.

In contrast to the climate change and ozone treaties, the biodiversity treaty was not preceded by a comprehensive scientific assessment. This is partly because the field of biological diversity is so

complex, and partly because biodiversity researchers and observation systems are much more decentralized and location specific. The Convention clearly recognizes that there is a lack of knowledge regarding the conservation and sustainable use of biodiversity and that there is an urgent need to develop this knowledge.

"This unique assessment has the potential to shape the scientific agenda for the next decade", UNEP Executive Director Elizabeth Dowdeswell said. "It could also be the starting point for future assessments conducted within the framework of the Convention that would begin providing a sound basis for policy-making."

The Assessment does not attempt to provide an up-to-date inventory of ecosystems and species or an analysis of international policies and measures. It focuses instead on assessing the scientific understanding of biodiversity's various components -- ecosystems, species, and genes -- and on identifying gaps in the knowledge base that should be targeted for future research. In other words, it is a snapshot of the current state of the biodiversity sciences and of the subject as perceived by the world's scientific community.

While great advances have been made in recent years, the Assessment demonstrates that scientists still have only a very incomplete understanding of the Earth's biological diversity. In contrast to many other sciences, there is still a great range of opinion even on certain basic theoretical issues. Gaps in data are enormous, and estimates can sometimes differ by orders of magnitude.

"Enormous holes exist in our knowledge of ecosystem diversity," said Ms. Dowdeswell. "We urgently need a much better understanding of ecosystem dynamics. For example, how big must a nature reserve be to effectively preserve species diversity? We just do not know. The fact is that most national reserve systems are based on historical accident rather than a scientific analysis of how they should be structured to best preserve biodiversity."

Scientific understanding of how species evolve and function, and how genetic diversity is distributed within populations, also has a long way to go. Another area requiring more research is the knowledge base of indigenous peoples -- knowledge that is rapidly disappearing as traditional societies become displaced from their lands.

The Assessment finds that ecosystems of all kinds are under pressure world-wide. Coastal and lowland areas, wetlands, native grasslands, and many types of forests and woodlands have been particularly affected or destroyed. For example, in the early to mid-1980s, humid tropical forests were losing nearly 25 million acres annually, or just under 1 per cent globally; dry tropical forests may have lost even more area. Of the 232,000 square miles of coral reefs in the world, about 10 percent have already been eroded beyond recovery.

The report estimates that the total number of species on Earth is 13 to 14 million, of which only 13 percent, or some 1.75 million, have been scientifically described. It also notes that the number of species

that have been recorded as threatened with extinction -- about 26,000 plants and 5,400 animals -- is far from the real total. The status of most of the 1.75 million described species -- let alone the many millions of undescribed species -- has never been fully assessed. Flowering plants and vertebrate animals have recently become extinct at a rate estimated to be 50 to 100 times the average expected natural rate.

The report goes beyond evaluating the problem to analyzing various options for ensuring that biodiversity is conserved and used sustainably. It concludes that biodiversity management must go far beyond simply establishing isolated nature reserves or setting up agricultural seed banks. Instead, it must be fully integrated into all aspects of landscape management, including agriculture, socio-economics, and other relevant fields.

An analysis of the economic values of biodiversity finds that biological resources are used inefficiently and inequitably. The root causes of the loss of biodiversity are embedded in the way human societies use resources and in changes in human attitudes to nature. Policies could be adopted that would confront users with the full social costs of their actions while enabling investors in conservation to reap the benefits.

The impact of cultural values on biodiversity is stressed, including contrasting attitudes towards nature and the concept of wilderness. So too is the increasing role of urban biodiversity in human societies.

Specific sections of the report include the characterization of biodiversity, the magnitude and distribution of biodiversity, basic principles of the functioning of biodiversity and ecosystems, human influences on biodiversity, and economic values of biodiversity.

The Global Biodiversity Assessment project originated in July 1992 when the GEF Technical and Scientific Advisory Panel recommended to UNEP that a global assessment of current knowledge in the broad field of biodiversity be carried out. Following GEF's agreement to fund it, the project was formally approved by UNEP in May 1993 and a Steering Group was appointed.

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