

Report of Group 1

Biodiversity, Invasive Species, Forest Ecology and Protected Areas

Background

GEOSS aims to achieve comprehensive, coordinated and sustained observations of the Earth system, to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the behavior of the Earth system. The nine societal benefit areas (SBA) addressed in the implementation plan are:

- Disasters: Reducing loss of life and property from natural and human-induced disasters
- Health: Understanding environmental factors affecting human health and well-being
- Energy: Improving management of energy resources
- Climate: Understanding, assessing, predicting, mitigating, and adapting to climate variability and change
- Water: Improving water resource management through better understanding of the water cycle
- Weather: Improving weather information, forecasting and warning
- Ecosystems: Improving the management and protection of terrestrial, coastal and marine resources
- Agriculture: Supporting sustainable agriculture and combating deforestation and desertification
- Biodiversity: Understanding, monitoring and conserving biodiversity

Forest ecosystems are amongst the Earth's greatest natural resources and are linked to all nine SBAs. The current lack of globally consistent assessment of the current status and trends in forest biological diversity is significantly limiting efforts to evaluate the effectiveness of world's forests conservation and management programmes. Filling this gap and advancing our knowledge of the status of and trends in the world's forest biodiversity and its long-term ability to support multiple societal benefit areas will require the coordinated development of Earth observation systems. In this broad background, the discussions were organized at the meeting.

Main Issues Flagged: Forest ecosystems have multiple functions and operate at multiple levels. From the GEO perspective, the Group identified them as follows:

Multiple functions:

- Livelihood support (mostly indigenous people)
- Biomass production
- Biodiversity including timber and non-timber species
- Watershed conservation (soil and water) in Mountain areas

Multiple Level

- Local
- National and
- Global

Reporting Needs

Carbon is being taken care of by Group 2. In respect of biodiversity need was identified for a simple reporting system at the national and global levels, which is policy-relevant. For global level, the need is critical for integrating national reports in a Global Ecological Zones Framework and Global Land Cover Map and developing a basis for global reporting on a continuing basis. For water issues, mountain systems could be used with a regional watershed division.

Tools and Technology

Limitations of RS at species and Gene level classification were recognized, but forest (habitat) types and ecosystems could be distinguished using remote sensing data combined with climate and elevation data. Urgent need was identified for an agreed Ecosystem Classification and mapping at Global level; and distinguishing measurable parameters using remote sensing and other available data at the national and global levels. It was flagged that FAO's current RS assessment may have limitations for the purpose, which is currently based on sampling.

Broad Approaches Suggested

Biodiversity Monitoring should be undertaken at the local, national and international levels in view of needs of communities, governments, and international societies. For GEOSS purposes, national and global levels are relevant.

There is need to adopt a holistic approach to biodiversity assessment and include data on local / indigenous communities also and environmental parameters along with forest information. Three time frames were suggested to be followed viz. immediate, medium and long term.

Immediate Term (1-2 years)

A database should be compiled based on reports of international Agencies including data from FRA, CBD, UNFF, IUCN, UNEP-WCMC, etc. related to biodiversity and data analyzed and reported to understand the current biodiversity conditions and identify unique forests areas (hot spots) under threats. Experts should also elaborate methodologies for effective use of information for policy development on the subject. **A simple presentation of biodiversity data will be needed for policy makers for their easier understanding and prompt action.**

Medium Term (say 2-3 years)

A global **forest biodiversity tracking** (FBT) mechanism should be developed (similar to Forest Carbon tracking) using remote sensing imagery, field data like biodiversity inventories, and modeling approaches for simulation.

Capacities of remote sensing need to be assessed for biodiversity monitoring:

- For assessment of actual forest conditions in and outside protected areas
- For assessment of forest fragmentation with higher-resolution imagery
- Locating large forest tracts for conserving diversity of wild plants and animals

Based on above studies, a simple (but comprehensive) biodiversity monitoring mechanism should be elaborated for feasible application at country level.

A series of training workshops at regional would be useful to develop coherent criteria and indicator for effective biodiversity monitoring and its dissemination to countries.

Pilot countries should be selected for testing the idea in each region, based on their ecosystem types/conditions and needs for conservation and sustainable use. After synthesis of results in the pilot countries, assessment should be expanded to other countries on an operational basis.

A strategic work plan should be prepared for national / global biodiversity monitoring mechanism, comprising establishment of a website with updated biodiversity data and write up on methodologies. Side by side a national and regional network of experts developed for dissemination and exchange of information and capacity building.

Long Term Action (5 years)

The Biodiversity conservation is closely associated with life support and environmental services of forest ecosystems including carbon, biodiversity and watershed protection. Keeping this in view, it was recommended that that biodiversity monitoring should be linked with carbon tracking and water resources monitoring, for integrating overall forest functions; and a comprehensive database should be developed including main forest functions to enable analysis and reporting of social, economic and environmental functions of forests in a holistic manner..