



# GEO BON/CBD Bulletin

A Briefing Note of the Expert workshop on enhancing biodiversity data and observing systems in support of the implementation of the Strategic Plan for Biodiversity 2011-2020

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## BRIEFING NOTE OF THE EXPERT WORKSHOP ON ENHANCING BIODIVERSITY DATA AND OBSERVING SYSTEMS IN SUPPORT OF THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020: 12 OCTOBER 2013

The Expert workshop on enhancing biodiversity data and observing systems in support of the implementation of the Strategic Plan for Biodiversity 2011-2020 was held on 12 October 2013, in Montreal, Canada. Eighty participants from 50 countries attended the workshop, and discussed ways in which the collection of, access to, and the use of biodiversity data and observations can be enhanced to support evidence-based decision making and planning with a view to achieving the Aichi Biodiversity Targets and corresponding national targets. They examined, in particular, how the tools, products and approaches developed by the Group on Earth Observations Biodiversity Observation Network (GEO BON) could help Parties to the Convention on Biological Diversity (CBD) achieve these goals. The workshop was co-organized by GEO BON and the CBD Secretariat, with support from Diversitas and the US National Aeronautics and Space Administration (NASA). GEO BON functions as a network of networks and organizations involved in biodiversity observation with the objective of achieving a more complete understanding of the status and trends in the world's living resources. GEO BON was launched in February 2008 and recognized by the ninth session of the CBD Conference of the Parties (May 2008, Bonn, Germany) as a partner for collaboration in promoting coherent biodiversity observation with regard to data architecture, scales and standards, observatory network planning, and strategic planning for its implementation.

### **SESSION 1: SETTING THE SCENE AND DETERMINING NEEDS AND EXPECTATIONS**

CBD Executive Secretary Braulio Ferrera de Souza Dias welcomed participants, expressing hope that the workshop would deliver ideas to stimulate discussion at the seventeenth meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 17). He noted that, while progress has been made in developing indicators, many Aichi Targets still lack a clear baseline against which progress can be assessed. Citing an example from Brazil's action against deforestation, he highlighted the need to link observation data and indicators to policy options.

GEO BON Chair Robert Scholes provided an overview of GEO BON and its objectives, including creating a community of practice and partnerships for biodiversity observation, coordinating activities, and developing harmonized entry points to facilitate access to data. Noting common challenges of biodiversity information, such as fragmented data sets, lack of temporal continuity, access restrictions and incompatible data formats, he suggested that solutions should focus on indicators for the Aichi Targets, use available and soon-to-be-available data, and focus on Essential Biodiversity Variables (EBVs). He

said GEO BON seeks to provide building blocks for durable, multi-purpose systems across countries, which he referred to as "BON in a Box."

**NATIONAL CASES STUDIES:** Participants observed five country case studies from Cuba, Australia, Ethiopia, France and the UK, covering national activities, needs and barriers to observation. A synthesis of needs and barriers was presented in the afternoon.

Mike Gill, Environment Canada, speaking on behalf of a Cuban colleague, presented on Cuba's activities, including the Cuban node of the Global Biodiversity Information Facility (GBIF), the Cuban Clean Development Mechanism and an ocean biodiversity portal maintained by the national aquarium. He said specific challenges in Cuba include insufficient human resources, lack of guidelines for indicator development, and the need for a legal instrument to manage data gathering, integration and access.

Greg Terrill, Australian Government Department of the Environment, said that biodiversity observation in Australia is characterized by a wide range of mechanisms and projects that provide rich data on specific regions and issues, but suffer from a lack of integration.

Gemedo Tussie, Ethiopian Institute of Biodiversity, said the Institute coordinates observation and management for the implementation of several multilateral agreements; however, it faces challenges in collecting comprehensive data on the status of biodiversity, ensuring continuity of observation efforts and using data collected for specific projects.

Barbara Livoreil, Fondation pour la Recherche sur la Biodiversité, reported that the French platform for biodiversity observation and research (ECOSCOPE) provides a portal to collect data gathered by researchers, civil society and citizen scientists. While a strong motivation exists to contribute data, she said the platform faces challenges arising from the heterogeneity of data formats and collection methodologies.

Andrew Stott, UK Natural Environment Service, stated that, while the UK has a rich heritage of biodiversity observation, coordination and integration are hampered by the divergent interests represented by the many institutions involved. He explained that current efforts focus on building a framework for integrating different types of observations, supporting volunteer networks and making better use of new observation technologies.

In the afternoon, Matt Walpole, UN Environment Programme World Conservation and Monitoring Centre (UNEP-WCMC), presented a synthesis of common needs and barriers raised in the case studies. He explained that the most common needs include: baselines; transparency about data ownership; ensuring data quality and harmonization; specific data gaps regarding marine ecosystems, biodiversity outside of protected areas, ecosystem connectivity and functional groups; and use of innovative tools, such as DNA barcoding and online portals. He said a key barrier arises out of conflicting objectives between policy makers and scientists and a lack of champions, which can bridge this divide. Other barriers identified include: lack of coordination and standardization even in countries that gather lots of data; poor access to funding, capacity and technological resources; and barriers to broad public access.

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## SESSION 2: DATA NEEDS AND METHODS FOR DATA COLLECTION

### NEW PRODUCTS AND TECHNIQUES TO COLLECT AND ACCESS DATA:

The first part of this session focused on opportunities to collect data using new products and techniques. Participants met in small groups to discuss opportunities and limitations at the national level of using: earth observations and remote sensing; *in-situ* monitoring; crowd sourcing/citizen science; and global tools and data products.

**Earth observations and remote sensing:** Cristina Secades, UNEP-WCMC, presented the results of a study on the use of remote sensing in measuring progress towards implementing the Aichi Targets, noting opportunities in monitoring land cover and land use change (Target 5), while pointing to gaps with regard to coverage of certain ecosystems, such as grasslands, savannahs and deep water marine ecosystems. She suggested that new methods would allow observations at the species level, which would enable limited monitoring of invasive species (Target 9). She also reported on a Canadian project to develop a dynamic habitat index for coherent classification of areas and identification of ecologically valuable sites for the establishment of new protected areas.

The discussion focused on barriers to access and use of data, including costs, lack of data pre-processing and the absence of pre-processing standards, limited network connectivity and bandwidth, and difficulties in ensuring long-term continuity of observation activities.

***In-situ* monitoring:** Henrique Pereira, German Centre for Integrative Biodiversity Research (iDiv), underlined the importance of *in-situ* and species monitoring to assess the state of biodiversity, monitor pressures on species and habitats, and evaluate the impacts of management strategies and policy responses. He stressed the existence of three major gaps: spatial coverage, temporal coverage and taxonomic gaps. He further stressed the importance of the EBVs approach, which would provide a minimum set of variables with adequate spatial and temporal coverage, to be measured by all.

Participants discussed limitations with regard to: coordination of monitoring efforts, even in countries with many data gathering initiatives; capacity building; and evaluating new tools, such as automated cameras, DNA barcoding, citizen science networks and modeling.

**Crowd sourcing/citizen science:** Mark Chandler, Earthwatch, provided an overview of citizen science methods and explained how they can be used to fill gaps in spatial and temporal data coverage, assist in ground-truthing of remote sensing data, and observe specific events. He noted that co-created projects of local communities and scientists can deliver benefits at the local level and stressed the importance of feedback, tangible benefits and training for long-term engagement of citizen scientists.

Participants discussed challenges in validating crowd-sourced data, addressing biases and aligning citizen scientists' efforts with the information needs of policy making. They also noted difficulties in establishing trusted dialogue between citizen scientists and the scientific and policy-making communities, as well as the need to identify and train champions who can bridge this gap and the need for pilot projects in countries with little experience in citizen science.

**Global tools and data products:** Anna Chenery, UNEP-WCMC, explained that global tools and data products can be useful to fill national data gaps, put national observations into an international context, and support implementation and revision of national biodiversity strategies and action plans (NBSAPs). She highlighted that current initiatives, such as the Biodiversity Indicators Partnership, have developed indicators for many of the Aichi Targets.

Participants highlighted that many gaps remain, including on terrestrial, marine and freshwater biodiversity and certain geographic areas. Furthermore, data and indicators are currently insufficient to assess progress towards addressing the underlying causes of biodiversity loss (Strategic Goal A of the Aichi Targets), enhancing benefits of biodiversity (Strategic Goal D), and enhancing implementation through participatory planning, knowledge management and capacity building (Strategic Goal E). Participants also discussed concerns with regard to the lack of baseline data and quality, reliability and scalability of global data sets. The group further noted that lack of awareness and limited information on global tools and data products are important barriers to their use.

### NATIONAL DATA AVAILABILITY AND NEEDS:

Participants then met in small roundtable groups to discuss four questions around data collection and access to data at the national level, as well as obstacles to and arguments for improved national data collection and access. A synthesis of the results for each question was presented to plenary.

**How has access to data supported the implementation and monitoring of national biodiversity strategies and action plans and achieving the Aichi Targets?** Participants noted that access to data is important for: strategic spatial planning and the identification of protected areas; measuring progress, including defining baselines; describing the status of biodiversity; and identifying gaps. They discussed the need to focus on measuring the right variables at appropriate spatial and temporal resolutions and to facilitate collaboration among ministries. Furthermore, they identified challenges in “retrofitting” data collected in the past to the Aichi Targets, and gathering data that directly relates to policy making. During the plenary discussion, one participant stressed the need to reduce the lag time between data collection and decision making, and the need to translate data into salient narratives for policy makers.

### Which additional data are needed to track indicators necessary to assess progress towards the Aichi Targets?

Participants developed a list of specific gaps, including marine and coastal ecosystems, freshwater ecosystems, dryland ecosystems, species level information, data on genetic diversity, and indicators to track progress on targets under Strategic Goals A, D and E. In particular, they identified the need to enhance data and indicators for national accounting, and to monitor the impacts of transboundary trade and climate change. In other areas, they said efforts were needed to make available existing data and knowledge, such as expert and traditional knowledge, through assimilation and aggregation of data and developing metadata catalogues and linked indicators. One participant added the need to also monitor the positive role biodiversity plays in climate change mitigation.

**What are the obstacles to collecting and accessing data at the national level?** The main obstacles discussed included: data fragmentation; lack of digitization; lack of credible standards, definitions and formats; and insufficient capacity to understand and measure biodiversity values. The roundtables also discussed possible trade-offs between making data freely available and ensuring data quality and transparency, as well as the role of technical expertise in enabling data use in specific areas. In plenary, participants discussed the challenge to secure funding for long-term monitoring programmes.

**Which arguments would convince decision makers of the need to make more data available?** Participants agreed that, in general, data should be more directly linked to policy making to provide a better rationale for data collection. Other arguments included the role of data in measuring policy impact and success, minimizing risks and maximizing benefits, and providing an evidence base for difficult decisions. One participant said that data can also be used to “shame” policy makers for adverse decisions or inaction.

### SESSION 3: OBSERVING SYSTEMS

This session focused on discussing how national observation can be supported by regional and global observing systems, such as GEO BON. Delegates were presented with a national and a regional case study, which were further discussed in regional roundtables. The results of the roundtables were presented to plenary and focused on national and regional challenges.

**CASE STUDIES:** Lu Xiaopi, Nanjing Institute of Environmental Sciences, presented the experience of China's National Biodiversity Assessment Program, which identified the spatial distribution of more than 30,000 species native to China. The spatial maps were used to select monitoring sites based on complementarity analysis and expert knowledge, as well as to identify conservation sites.

Mike Gill presented the Circumpolar Biodiversity Monitoring Program (CBMP), which combines the efforts of eight Arctic nations under the Arctic Council. The CBMP integrates data into the Arctic Biodiversity Service – an interoperable database for multiple purposes. Lessons learned include that observation networks must be relevant and simple, build on existing capacity and information resources, and focus on essential variables and indicators. He noted that regional networks would greatly benefit from a set of essential biodiversity variables and a standard for database interoperability.

**NATIONAL CHALLENGES:** The overriding national challenges discussed at the regional roundtables included: lack of capacity, funding and guidance for developing observing systems; and inadequate and fragmented data. Participants noted that few countries have experience with comprehensive observing systems and that there is a need to identify the building blocks for national observation efforts.

**REGIONAL CHALLENGES:** The overriding challenges for regional observing systems included: differences in methodologies and data incompatibilities; technology gaps; lack of a rationale for policy makers to invest in transnational activities; and specific challenges for ocean observation in areas beyond national jurisdiction.

**HOW CAN GEO BON SUPPORT NATIONAL OBSERVATION?** Each roundtable then developed a proposal for a regional initiative that would contribute to national observing efforts. Participants were asked to identify which proposal they would invest in if they were a national policy maker, which led to the following list, ranked by number of votes received:

- Develop components for national systems to assist countries in developing national observing systems (BON in a Box);
- Develop robust guidelines based on policies that indicate what should be monitored and how, including guidelines for data management infrastructure and the use of innovative approaches;
- Bring together all sectors holding biodiversity information and develop economic arguments that show how biodiversity conservation supports development;
- Act as a pressure group to access funding from international bodies and other sources to support building national capacity;
- Develop approaches to integrate remote sensing and other data; and
- Develop regional approaches to support collaboration and capacity building for ocean observation.

Participants further noted that regional approaches should focus on developing tools and guidance for training and capacity building and aim to bring different actors together. They said regional approaches should not only be geographically but also ecologically based and integrated into established regional mechanisms for collaboration. Some suggested creating regional centers of excellence to provide support to regional and national initiatives.

### CLOSING SESSION

Several participants expressed their appreciation with the interactive format of the workshop and underlined the usefulness of discussing the data challenges they encounter in their respective countries in implementing their NBSAPs and the Aichi Targets.

In conclusion, GEO BON Chair Scholes said the workshop had highlighted: the need to enhance existing activities, as well as develop new approaches; and the importance of understanding the rich diversity of efforts underway and the interests of the many actors involved. Furthermore, he said the workshop underlined the role of international initiatives, like GEO BON, in developing methods and engaging observation organizations at the international level. He explained that the outcomes of the workshop would be summarized in an information document for SBSTTA 17 and presented to the SBSTTA plenary on Monday 14 October, together with perspectives delivered by other international observation initiatives.

He thanked participants for their contributions and engagement and closed the workshop at 6:30 pm.



Workshop participants



# Biodiversity Policy & Practice

<http://biodiversity-l.iisd.org/>

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