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**GEO BON NATIONAL AND REGIONAL BIODIVERSITY OBSERVATION NETWORK
DEVELOPMENT: SUPPORTING THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020**

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith, for the information of participants in the first meeting of the Subsidiary Body on Implementation, a document prepared by the Group on Earth Observations - Biodiversity Observation Network (GEOBON).
2. The report is presented in the form and language in which it was received by the Secretariat.

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GEO BON NATIONAL AND REGIONAL BIODIVERSITY OBSERVATION NETWORK DEVELOPMENT: SUPPORTING THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020

In decision XII/1 the CBD CoP invited parties, indigenous and local communities and other relevant stakeholders to collaborate with GEO BON and other relevant organizations that contribute to building observing systems and to biodiversity monitoring, to address the priority needs identified by Parties related to biodiversity observations and monitoring. In this regard, this information note:

- Highlights the strategic approach that the Group on Earth Observations Biodiversity Observation Network (GEO BON) is taking with regard to national and regional biodiversity observation network development in support of the Strategic Plan for Biodiversity 2011-2020;
- Highlights several CBD relevant outputs from GEO BON's national and regional biodiversity observation network development efforts expected in the next 12 months; and,
- Seeks input with regard to GEO BON's biodiversity observation network approach and outputs to ensure they are of maximum benefit to the Parties to the Convention on Biological Diversity.

GEO BON National and Regional Biodiversity Observation Network Approach:

GEO BON's mission is to improve the acquisition, coordination and delivery of biodiversity observations and related services to users including decision-makers and the scientific community. Its vision is a global biodiversity observation network that contributes to effective management policies for the world's biodiversity and ecosystem services. To achieve the mission and vision, GEO BON is taking a top-down and bottom-up approach via its network of strategic partners.

The top-down approach includes the development of Essential Biodiversity Variables which will provide guidance to biodiversity observation systems that are under development. It also facilitates the design and implementation of a number of thematic observation systems, such as the Global Wetland Observing System, Marine Biodiversity Observation Network, Global System of Ecological Observatories, and Global Platform for Ecosystem Services (all of which are GEO BON activities). The complementary bottom-up approach works directly with national and regional partners to design and implement biodiversity observation networks (BONs) as well as related tools that help produce interoperable biodiversity data and fill gaps. GEO BON is strategically focusing on filling gaps in tropical and marine systems and in observation data that inform the Aichi Targets. The development of interoperable biodiversity observation networks are packaged under three related program areas:

1. Endorsement and connection of existing biodiversity observation networks into the GEO BON global network;
2. Development of BON in a Box: Improving Capacity for Biodiversity Conservation

3. Development of new national, regional and thematic biodiversity observation networks

1. *Endorsement and Connection of Existing Biodiversity Observation Networks into the GEO BON Global Network*

Many biodiversity observation efforts exist around the world, driven by a variety of objectives, focusing on various aspects of biodiversity and employing a range of methods. Biological field stations collect data on biological communities and ecosystem functioning, often for decades; conservation organizations and citizen scientists typically monitor species; fisheries data are collected from a vast range of rivers, lakes and the sea; and forest data are available from large parts of the globe. Remotely sensed platforms have produced long term data on change in land cover and land use, data on phenology are becoming available and there is a powerful, emerging field for genetic monitoring. Despite the many excellent biodiversity observation efforts underway, in most cases, these efforts are not interlinked and harmonized in a way that facilitates data aggregation and scaling. In order to address the many pressures driving biodiversity change and considering the limited capacity for biodiversity observations, it is critical that we begin to move towards a more interlinked approach for observation, data management, data flow and reporting.

Achieving greater interlinkage will facilitate national reporting for the Convention on Biological Diversity (CBD), serve regional and global assessments of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), improve conservation planning and environmental impact mitigation and serve the scientific community. Thus, GEO BON encourages the establishment, enhancement and interlinkage of biodiversity observation networks (BONs). These BONs engage in networking, biodiversity monitoring and making biodiversity data and data products publically available. They will become full members of the GEO BON family, benefiting from and contributing to, on an ongoing basis, the expertise and tools of the global network and biodiversity observation community and thereby, becoming part of an organized but flexible global framework for biodiversity observations.

GEO BON has implemented an endorsement application process by which existing BONs can apply to become formal members of the GEO BON network. Endorsement provides a formal relationship to GEO BON and the associated benefits. Although BONs might not fulfill all criteria from the very beginning they can be provisionally endorsed as a 'Developing BON'. BONs in that initial phase will develop further and might seek help within the GEO BON community to do so.

Development of BON in a Box: Improving Capacity for Biodiversity Conservation

Better information on the status, trends and drivers of biodiversity change is needed to assist governments in developing more effective and timely policy responses. There are many excellent tools, protocols and software in use that facilitate effective biodiversity monitoring but these are not easily discoverable or available to all regions of the planet. As well, current efforts to monitor biodiversity are not interoperable, thereby limiting our ability to detect change and the underlying mechanisms driving change in biodiversity.

BON in a Box (www.boninabox.geobon.org) aims to serve as an online technology transfer and capacity building mechanism that allows countries, organizations and regions continual access to

advanced monitoring protocols, tools and software thereby, lowering the threshold for a country or region to establish, enhance or harmonize a biodiversity observing system. It is regionally customizable and continually updated to maximize its utility. BON in a Box is being designed to directly support domestic biodiversity and sustainable development mandates and is particularly designed to improve capacity for national reporting for the CBD and regional and global assessments of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

BON in a BOX gives nations, regions and others a common and scientifically sound set of biodiversity variables, monitoring methods and guidelines, mapping software, and data management, analysis, discovery and reporting tools and platforms, thereby increasing the power at not only a national but also a regional and global scale to detect important biodiversity trends and their underlying mechanisms.

The development of the first prototype of BON in a Box was led by Colombia's Alexander von Humboldt Institute. This first version was developed specifically to address needs in the Latin American region and is available in Spanish, English and Portuguese. For more background information on BON in a Box go to: <http://geobon.org/bon-in-a-box/what-is-bon-in-a-box/> and <http://boninabox.geobon.org> to access the toolkit.

2. Development of New National, Regional and Thematic Biodiversity Observation Networks

Developing a national or regional Biodiversity Observation Network (BON) that is sustainable, efficient, powerful and well connected to policy needs requires a systematic, open and inclusive process for successful development and implementation. As well, it is important that a national BON does not develop and operate in isolation, but rather draws from and contributes to broader regional and global biodiversity observation efforts while, at the same time, allowing flexibility and customization to respond to national and sub-national needs. In this regard, GEO BON is focused on working with national and regional organizations to help facilitate effective and efficient biodiversity observation networks that, first and foremost, respond to and serve user needs at the national and sub-national level (e.g. policy and decision-makers). While also contributing to the development of a global, interoperable network for biodiversity observations that improves our overall ability to detect, track and understand global and regional biodiversity trends.

With the above in mind, GEO BON is employing a sequenced approach to establishing national and regional BON's, drawing upon successful examples and building upon existing standards, tools and frameworks that ensures relevance, efficiency, harmonization and the uptake of new technologies. Such an approach also provides the opportunity to contribute to the aggregation of global datasets, the disaggregation of existing global datasets, the generation of data for national, regional and global indicators and lowers the threshold for the start-up or enhancement of a national or regional biodiversity observation network.

To ensure an opportunity for consistency and harmonization and to ensure that all essential components (e.g. primary observations, derived variables (i.e. Essential Biodiversity Variables), indicators and policy

outputs) of a BON are included, we use a framework for a biodiversity observation/information system (Figure 1) to guide its development.

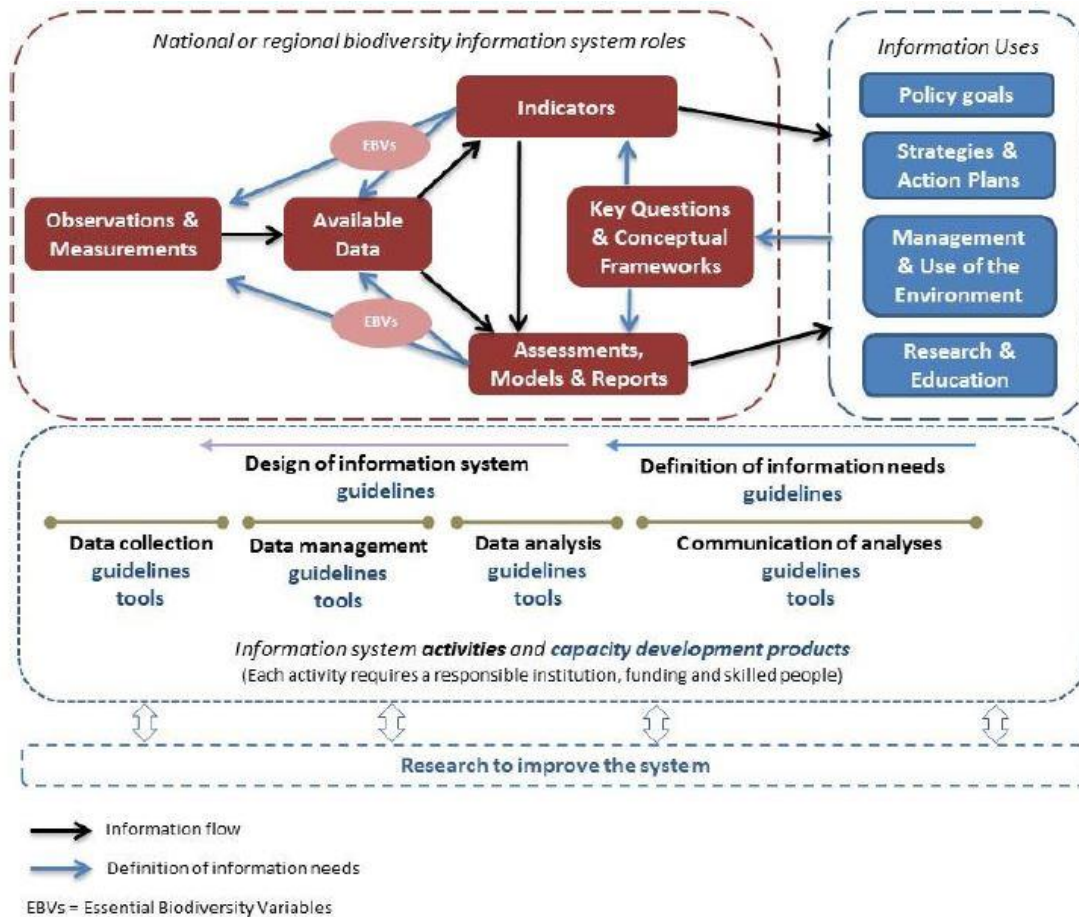


Figure 1: Conceptual Framework for a National or Regional Biodiversity Observation System. Produced by UNEP-WCMC (Philip Bubb) for the EU-BON project, 2015.

Summary of Steps to Designing and Implementing a Biodiversity Observation Network

Phase	Step	Methods	Participants
Engagement	1. Develop an Authorizing Environment	Meetings	Senior officials and/or politicians.
	2. Set up the Design and Implementation Team	Meetings	Combination of decision-makers and scientists
Assessment	3. Assess User Needs	Surveys, meetings, and/or	Decision and policy

		workshops	makers and scientists.
	4. Inventory Existing Data, Tools and Platforms	Surveys, literature search, etc.	Design and Implementation Team led with contractor or student help
Design	5. Choose Focal Ecosystems, Develop Conceptual Models, and Define EBVs and Primary Observations	Workshop	Design and implementation team and scientific community
	6. Choose Data Collection Methods	Workshop	Design and implementation team and scientific community
	7. Develop a Sampling Framework	Workshop	Design and implementation team and scientific community
	8. Define Data Management, Analysis and Reporting Approach	Workshop	Design and implementation team and scientific community
Implementation	9. Build an Implementation Plan	Meeting	Design and implementation team

Planned Near-term Outputs from GEO BON's National and Regional Biodiversity Observation Network Approach

Fully functional version of BON in a Box

A beta version of BON in a Box: Latin America was launched at the CBD SBSTTA19 meeting in November, 2015. This Latin American prototype was led by Colombia's Alexander von Humboldt Institute on behalf of GEO BON. The Humboldt Institute and GEO BON are currently working with GEO BON's Working Groups as well as both global and Latin American organizations to develop a more advanced version (1.0) which will have more advanced tool packages (e.g. ecosystem service toolkits) and a more advanced user-interface with additional search capabilities. This advanced version (1.0) will be released at the CBD CoP13 in Mexico in December 2016.

Beginning in 2016, GEO BON will be working with three sub-Saharan countries (Ghana, Uganda and Mozambique) as part of a larger UNEP WCMC led, GEF funded biodiversity mainstreaming project to

further develop BON in a Box to ensure it directly supports African countries' biodiversity observation and information needs. GEO BON, as a partner in this project, will focus its efforts on improving the supply of biodiversity information for decision-making and this will include custom development of BON in a Box in this context as well as the development of specific tools and products for facilitating improved biodiversity observations. The toolkit will be tailored with these countries needs in mind but will be accessible throughout all of Africa. These custom elements of BON in a Box will be fully operational in 2019.

Discussions are currently underway with GEO BON's Marine BON partner organizations and IOC's OBIS to develop a marine version of the biodiversity observation toolkit – serving as a delivery mechanism for more standardized and cost-efficient marine biodiversity observation approaches globally.

A Colombian National Biodiversity Observation Network as prototype for the CBD

GEO BON is working directly with Colombia's Alexander von Humboldt Institute, using GEO BON's biodiversity observation network development process and BON in a Box, to develop a national Colombian Biodiversity Observation Network. The development of a Colombian National BON is being specifically designed, in part, to serve Colombia's needs and obligations with regard to its national reporting for the CBD. This will allow the testing of the process and the application of BON in a Box in the facilitation of the design and implementation of a national BON. Colombia and GEO BON will be presenting the refined development and implementation process and the national BON as pilot processes and template structure to the CBD. It is hoped that these pilots will serve as useful guidance and structures for easy adoption and customization for other Parties in the development or enhancement of their own national BONs.

GEO BON seeks and welcomes investments and contributions into its national and regional biodiversity observation particularly with regard to further development of BON in a Box. GEO BON is also positioned to work with other national partners in the design and implementation of national biodiversity observation networks that underpin the Strategic Plan for Biodiversity 2011-2020.
