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Item 3 of the provisional agenda*

UNEDITED DRAFT REPORT OF THE EXPERT WORKSHOP ON ENHANCING BIODIVERSITY DATA AND OBSERVING SYSTEMS IN SUPPORT OF THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020[1]

Note by the Executive Secretary

1. 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, with the generous financial support of the National Aeronautics and Space Administration (NASA) and DIVERSITAS. The workshop was organized by the Group on Earth Observations Biodiversity Observation Network (GEO BON) and the Secretariat of the Convention on Biological Diversity. The workshop was organized to provide an opportunity to discuss ways in which the collection of, access to, and use of, biodiversity data and observations could be enhanced to support evidence-based decision-making and planning with a view to achieving the Aichi Biodiversity Targets and corresponding national targets.

2. The workshop was attended by 85 government representatives, intergovernmental organizations, institutes and non-government organizations. The list of participants is contained in annex I to this report.

ITEM 1. OPENING OF THE WORKSHOP, ORGANIZATIONAL MATTERS, SCENE SETTING AND NEEDS/EXPECTATIONS

3. The workshop was opened by the Executive Secretary of the Convention on Biological Diversity, Mr. Braulio Ferreira de Souza Dias. In his remarks, he noted that the expert workshop represented an opportunity for dialogue between biodiversity scientists and policy makers and the earth observation community. He also expressed his hope that the workshop would represent a starting point for the establishment of strategic connections being established in support of biodiversity and human well-being. Further, he noted the potential of working with the earth observation community towards enhancing the

* UNEP/CBD/SBSTTA/17/1.

[1] This unedited advance draft report is being issued for information of participants in the Seventeenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice. It has not yet been reviewed by participants in the workshop. The final report will be made available on the GEO BON website: http://www.earthobservations.org/geobon.shtml and the CBD website: wwww.cbd.int

collection and access to data for monitoring progress in implementing the Aichi Biodiversity Targets and associated national targets and recalled the analysis carried out by GEO-BON on observation needs for the Aichi Biodiversity Targets. In his remarks, the Executive Secretary emphasized the opportunities arising from more systematic use of remote sensing data and cost-effective and standardized *in situ* observations, including by drawing on volunteer efforts of citizen scientists, ensuring compatibility of data formats, the enhanced potential of analysing compatible data across data sets, more rapid deployment of new observing technologies and methods, and platforms leading to better indicators and better information in support of decision making and policy development. As an example of the potential of remote sensing, he pointed to the example of the monitoring of the Amazonian forest cover and its direct influence in reducing the rate of deforestation. In concluding, he thanked all the participants for their interest in the issues being discussed during the workshop and thanked GEO-BON for organizing the workshop with the financial support from NASA and DIVERSITAS. He also thanked Mr. Bob Scholes, as Chair of GEO BON for his leadership.

4. Mr. Bob Scholes, the chair of GEO-BON welcomed participants to the workshop. In his opening remarks, he briefly explained what GEO-BON is, outlined the challenges associated with the effective use of biodiversity information to guide policy making and outlined possible and achievable solutions to them. He emphasized the need to focus on the information need associated with the Aichi Biodiversity Targets and proposed several building blocks that could be used as a starting point in enhancing our ability in monitoring biodiversity change. He then outlined the objectives and format of the meeting and identified key questions that participants may wish to consider.

5. Following these introductory remarks, a panel discussion was held to help better understand national perspective, needs and expectations related to biodiversity monitoring. During this discussion, five speakers provided information on their national experiences with regards to biodiversity observation networks:

(a) Mr. Mike Gill (CBMP and SC-GEO BON), on behalf of Ms. Teresita Borges Hernández (Cuba), presented information on Cuba's experience with national monitoring. It was observed that the need for an efficient national biodiversity observation network has been considered a priority in each of Cuba's NBSAPs and that as a result, a number of biodiversity observation and data management tools have been developed. However, despite the progress that has been made, a number of challenges remain. These include limited resources, biodiversity monitoring having a low political priority, limited motivation to share data and information, the absence of legal instrument regulating the collection and dissemination of information, and gaps in taxonomic knowledge;

(b) Mr. Greg Terrill (Australia) noted that Australia does not have a single biodiversity observation network but rather a range of mechanisms that contribute towards one. As a result, there is a great deal of data available, though it is not always available in a consistent manner. Some current efforts that are occurring in the country include developing capacity for data integration, and efforts to make data public and accessible to policy and research use. It was also noted that a recent review of the government's environmental information activity found five barriers. They were: the different objectives and motivations of policy makers and information providers, challenges related to coordination and cooperation, short-term funding arrangements, the lack of consistent standards and legal barriers. The development of the National Plan for Environmental Information is intended to overcome many of these barriers. In concluding, it was noted that key elements for a national biodiversity observation network are having clear objectives and baselines to measure progress against, the need for consistent and robust methodologies, and having a range of methods for collecting data;

(c) Mr. Gemedo Tussie (Ethiopia) noted that Ethiopia has a unique opportunity as they have an institute mandated to address biodiversity issues. He also noted that the countries clearing house mechanism is in place and can be used to gather data from different sources and to share them with the

wider public. However, while the clearing house mechanism is in place, it was observed that it is still not fully functional. Biodiversity information is also limited in the country or where it does exist, it is difficult to access and utilize. It was also noted that there is limited coordination between different ministries and government programmes which makes it difficult to discover and share information. A number of needs related to biodiversity observation networks were identified, including the need for long term training on data gathering and monitoring;

(d) Ms. Barbara Livoreil (France) provided information on ongoing biodiversity observation monitoring in France, including ECOSCOPE which aims to improve the availability and access of biodiversity information. She noted that the main barriers to biodiversity information are the result of heterogeneous data, the use of different data collection methodologies, and the use of different parameters. As such, data harmonization is a challenge. Given this, the approach taken in the country is to focus on issues related to the development of the NBSAP and to provide tools and funding for the development of new observation systems;

(e) Mr. Andrew Stott (United Kingdom) noted that in the United Kingdom there is no single biodiversity observation network, but that there is a large number of observing programmes that exist. These programmes are coordinated by Governments, academics and volunteers. It was also noted that biodiversity is observed for a number of reasons including legal requirements, international, commitments, policy development and evaluation, curiosity, public engagement and for fun. The result of this is that there is a large amount of information available however different approaches are often used for data collection. In conclusion, a number of tools that could be used to enhance biodiversity monitoring were noted including, more standardized methodologies, the greater use of earth observations, the greater use of DNA technologies for rapid assessments of biodiversity, the wider use of online data capture, better modelling approaches and methods for mapping ecosystem services.

ITEM 2. DATA - WHAT KINDS OF DATA DO COUNTRIES NEED AND WHAT ARE METHODS TO COLLECT AND ACCESS IT?

6. In order to efficiently discuss issues related to data, the workshop utilised a marketplace approach. The workshop divided into four groups, each considering a different issue. The different groups ran in parallel for forty minutes after which participants were asked to change groups and a further time was allocated for discussion. The four issues discussed were: Opportunities from Remote Sensing, *In situ* monitoring, Crowd sourcing/citizen science, and Global tools and products.

(a) **Opportunities from Remote Sensing** –This session was jointly led by Ms. Cristina Secades (UNEP-WCMC) and Mr. Marc Paganini (ESA). Ms. Secades reported on a review of the use and suitability of remote sensing information for measuring progress towards the Aichi Biodiversity Targets. This review was commissioned by the Secretariat of the Convention on Biological Diversity and involved a questionnaire administered to over 30 experts from national institutions, NGOs, as well as policy makers. The survey concluded that, for five of the 20 Aichi Biodiversity Targets, remote sensing data were already being used systematically while for another six this could be expected in the coming few years. The survey is available as an information document for SBSTTA17. Ms. Secades gave Targets 5, 9 and 11 as examples where remote sensing data were systematically used, noting however certain limitations (e.g. a focus on forest cover for target 5; difficulties to detect below-canopy invasive alien species for target 9). For target 11, she gave the Dynamic Habitat Index as an example which is being used in Canada to determine environmental clusters as a basis for assessing the ecological representativeness of the protected area networks. Five main limitations to the use of Remote Sensing data were discussed: (i) limited access to data (due to high costs, technical limitations to access the data and/or difficulties to deal with raw or insufficiently processed data); (ii) lack of consistent data validation; (iii) lack of harmonized data collection and standards (leading for example to the lack of comparable global land cover products for different years); (iv) limited capacities and lack of knowledge

to engage effectively with space agencies; and (v) time-limited space missions limiting the length of time series for data from the same sensors. The ensuing discussion noted that there was a general recognition of the potential of remote sensing data for application and use by the environment policy community, but the potential was not fully realized, in particularly because of the absence of reliable and standardized time series data and sufficiently processed data products such as maps. The business model of space agencies in trying to recover part of their costs from selling imagery was questioned, with examples given of how the use of remote sensing data had increased as a consequence of making data free and openly accessible. It was noted that space missions provide for consistent data capture over several years or decades while data products were considered as one-off research efforts and space agencies were usually tasked with low level data processing leading to products that were not directly useful to the biodiversity community. It was also noted that there is additional potential from digitizing and using aerial photography to complement satellite imagery. In summary, there was recognition that remote sensing data needs to be freely and openly accessible to be effectively used and that there is a gap between pre-processed data produced by space agencies and the final product that would be needed for policy making. Clearer specification of policy needs as well as who could deliver these products would assist in closing this gap;

(b) **In situ monitoring** - This session was chaired by Mr. Henrique Pereira (iDIV, Germany and SC-GEO BON). In his opening remarks, he provided a summary of *in situ* monitoring, explained its relevance and provided examples of how it could be carried out. He noted that species monitoring needs to be complemented with habitat monitoring and that in many countries there is a lack of consistent biodiversity monitoring. He further noted that in the third edition of the Global Biodiversity Outlook most indicators were species based and that the information they use is from *in situ* monitoring. Species based indicators provide the best picture at that level, but there are gaps in spatial and temporal coverage, and there are also taxonomic gaps. Given these challenges it was suggested that the Essential Biodiversity Variables (EBVs) [2] , could be used to fill gaps in a systematic manner. Following these introductory remarks, participants shared their experiences with *in situ* monitoring. Some countries noted that they focus their monitoring on a few key species. The importance of understanding data needs prior to undertaking a monitoring programme is important and information priorities would vary with a country's national circumstances. Different variables that could be monitored include species abundance, species distribution, and presence/absence.. It was noted that the development of new observing technologies, such as camera traps, are reducing the costs and resources required to undertake monitoring. Links between the *in situ* monitoring and crowd sourcing was noted and one participant observed that they work with indigenous and local communities to collect information. The importance of capacity building was noted as was the role of GEO-BON in providing an informal platform for exchanging information and capacity building;

(c) **Crowd sourcing/citizen science** - This session was chaired by Mr. Mark Chandler (Earthwatch). The Chair noted that citizen science can be an important part of biodiversity observation networks. The concept is old, but in recent years, especially due to the development of new technologies, there has been a growing interest in citizen science for biodiversity monitoring. The two main benefits of citizen science are expanded data collection with increasing engagement from society. The challenges associated with citizen science are ensuring rigorous, validated data that can be fed into larger scale systems such as GBIF. Another challenge is recruiting volunteers and maintaining their support through time. For this, ensuring feedback between data collectors and policy makers is very important. During the discussion, participants highlighted the importance of introducing pilot projects in countries where there is currently no citizen science programmes in place. Countries that have experience with citizen science highlighted the importance of systems for validating citizen data. It is also important to make the programmes relevant to policy makers to ensure continued funding;

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[2] Essential Biodiversity Variables are further explained in the information document UNEP/CBD/SBSTA/17/Inf/7

(d) **Global tools and products** - This session was chaired by Ms. Anna Chenery (UNEP-WCMC). In her opening remarks, she noted that the lack of available data can be a key constraint in monitoring biodiversity conditions and that biodiversity data is needed for the revision and implementation of NBSAPs among other things. Background information on the Biodiversity Indicators Partnership (BIP) was provided. It was noted that some of the indicators under the BIP are either based on national information or are based on global information which has been disaggregated to national or regional levels. The Biodiversity Barometer, the coverage of protected areas and the Nitrogen Deposition indicator were used as examples of how different global indicators could be disaggregated to provide nationally relevant information. Given this background information, the group then considered the possibilities and challenges of using global data sets and indicators to help fill national information gaps. During the discussion several points emerged. It was noted that global data, if disaggregated, can be used to fill national information gaps, however, better information on the underlying data and how the disaggregated data was derived is necessary before nations would have the confidence to utilize it. Global data sets and indicators can also be used to compare national circumstances with other countries and regions which in turn could allow for the identification of those areas where progress is being made and areas where more efforts may be needed. It was also observed that in situations where national methodologies for gathering data or developing indicators are not available, global indicators and datasets could serve as models and help to inform the development of national methodologies. The possibility of using global data to "backcast" national trends was noted. Some participants noted that national level information could also be aggregated in order to develop global indicators. A number of challenges to using global datasets were also identified. Among these were that global datasets are often not well known or understood. Further, countries may not be aware of how the information is collected and therefore reluctant to use it in national planning or reporting. One need that was identified was to develop a greater link or connection between data and indicators. A further need identified was the need for the development of data and indicators to monitoring progress towards targets that currently have no global indicators. These are primarily those targets under Strategic Goals A and E. The possibility of developing a pilot programme, using the Programme of Work on Protected Areas as a model, for the development of indicators was noted. A need for regional organizations, as well as entities such as GEO-BON and the Biodiversity Indicators Partnership, in helping to bring together data and connecting them to indicators was highlighted;

7. Following the market place session, participants broke into groups to consider four questions:

(a) How has access to data supported the implementation and monitoring of our NBSAP (and achieving the Aichi targets)?

- Participants raised a number of issues in response to this question. They observed that data is used for updating NBSAPS and other planning processes. It was noted that data is also used to assess progress and to ensure that the right issues are being monitored. Data is also used to facilitate collaboration between different ministries and sectors and for preparing various reports.

(b) Which (further) data do we need to help us track certain indicators?

- Participants in the workshop identified a variety of information needs. Broadly they could be categorized as thematic gaps (limited data for marine and coastal areas, freshwater, drylands, species, ecosystem values and services, and genetic diversity), and gaps related to Aichi Biodiversity Targets (mostly those targets under Strategic Goals A, D and E). There is a need for greater use of existing data (expert/traditional knowledge, metadata catalogues) and there is a need for a-biotic

(environmental) data to enhance our ability to interpret biodiversity trends.

(c) Which obstacles do you see to accessing national data and to collecting required data?

- Participants identified a number of obstacles. These included limited technical expertise, limitation in data digitilisation, data being fragmented across organizations, the lack of credible data standards for some issues, the lack of capacity and guidance for collecting data and making it accessible, and limited funding.

(d) Which arguments would convince decision makers in our countries of the need to make (more) data available?

- Participants identified a number of possible arguments that could be used to help concinve decision makers to make data more available. These included the need for evidence based decision making, highlighting how long-term biodiversity data has been successfully used to guide effective decisions, the ability to interpret information and convey this to the wider public and in some cases make data available as a legal requirement.

ITEMS 3. OBSERVING SYSTEMS: HOW TO BUILD AND SUSTAIN NATIONAL/REGIONAL OBSERVING SYSTEMS AND HOW GEO BON CAN SUPPORT NATIONAL/REGIONAL BIODIVERSITY MONITORING

8. Session three on observing systems was opened with two presentations. Mr. Lu Xiaoqiang (Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection, China) provided information on the design of China's biodiversity monitoring network. In his presentation, he noted that the National Biodiversity Assessment Program (NBAP) was initiated in January 2007 and is under the auspices of the Ministry of Environmental Protection of China. As part of the programme, vascular plants, fish, amphibians, reptiles, birds and mammals in the terrestrial and inland water ecosystems of the country are considered. He noted that information related to species richness is collected through provincial and local monographs on plants and animals, and other relevant literature, through the herbariums of the Chinese Academy of Sciences and relevant universities and through field surveys in different regions by different institutions and experts. Through the Biodiversity Assessment Programme a data set of 34,023 plant species belonging to 303 families and 3,103 genera, and 3,865 vertebrates, including 1,142 fish, 373 amphibian species, 388 reptile species, 1,339 bird species and 617 mammal species has been established. He noted that the data has been peer-reviewed by taxonomists and that more than 20 workshops have been held.

9. Mr. Mike Gill (Environment Canada, CBMP and SC-GEO BON) provided information on the Circumpolar Biodiversity Monitoring Program (CBMP). He noted that the CBMP is a programme under the Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council. The CBMP involves over 80 organizational partnerships and is coordinating biodiversity monitoring across the Arctic via four, pan-Arctic biodiversity monitoring plans (Marine, Freshwater, Terrestrial and Coastal). This information along with the aggregation of historical datasets is being made available via the Arctic Biodiversity Data Service and is, in turn, being used to generate products and indicators that target decision-makers at multiple scales (local, sub-national, national, pan-Arctic and global). Indeed, the CBMP has specifically focused on producing data to serve the Aichi Biodiversity Targets. Some of the lessons that were learned in developing the CBMP were the need to link observing design to reporting

mandates, to build on existing observing capacity and information, to start small, maintain focus and prioritize, to keep things simple, to budget for data management and analysis and to work toward data harmonization rather than standardization.

10. After the presentation session participants divided into regional groups and held roundtable discussions to discuss the different challenges in building and sustaining national and regional observing systems as well support strategies to overcome these. Participants considered four questions:

(a) What are the main challenges in building and sustaining national biodiversity observing systems?

- Participants identified a number of challenges including lack of capacity, funding, guidance; the fact that data are often patchy and collected from short-term projects, and often scattered across ministries/institutions. They also identified a lack of information systems and people to build them, as well as a lack of well-articulated arguments to support monitoring programmes. As a result, few if any truly national biodiversity monitoring systems exist.

(b) What are the main challenges in building and sustaining regional biodiversity observing systems?

- Participants identified similar kinds of issues scaled up to the regional level, particularly highlighting the heterogeneity of terminology and methods, and lack of interoperability and technological gaps. They also identified that rationale for users to invest regionally can be an even harder to make than nationally although also noted that regional initiatives can stimulate national uptakes and are often necessary to detect trends and answer questions that cannot be achieved at the national scale. The working group on marine areas beyond national jurisdiction (ABNJ) noted some additional specific issues including wide variation in development/capacity, limited awareness, strong commercial pressures and data collection challenges in the ocean, besides the governance issues presented by ABNJ.

(c) How can GEO BON support regional efforts?

- Participants, overall, expressed the desire for support for regions to establish their own biodiversity observing systems. In particular, there was interest in having GEO-BON provide tools, training, and expert guidelines (e.g. on the kinds of data needed to answer specific policy makers questions); standards (e.g. Essential Biodiversity Variables, terminology, methods); metadata systems and software; frameworks for designing monitoring programmes; regional centres of excellence; and guidelines on integrating biodiversity monitoring into established regional collaborative structures. Participants also highlighted the need to think of regions not simply in terms of neighbouring countries, but as meaningful ecological regions (e.g. Amazon Basin).

(d) How can GEO BON support national efforts?

- This final exercise was subject to a vote. Each regional working group was invited to identify supporting activities that GEO BON could provide, and then to identify the most valuable one. All participants were invited to vote on which of the most valuable supportive activities would be a priority for them. The result of this exercise is the following ordered from the highest to the lowest vote number:
    - Develop the "BON in a Box" – regionally tailored including Essential Biodiversity Variables;
    - Provide robust guidelines, based on policy needs, on what to monitor, how to monitor and how to develop database infrastructure, including innovative approaches;
    - Develop strategies to combine remote-sensed and *in-situ* (ground) data to deliver useful assessments and indicators;
    - Develop economic arguments in support of biodiversity role in national development;
    - Assist in capacity building in devising standard formats/terminology for sustaining national observation systems of biodiversity and advocate for access to funding from international sources; and,
    - Establish national and regional GEO BON biodiversity monitoring systems for oceanic states/island states/coastal states

ITEM 4. CLOSURE OF THE WORKSHOP

11. In closing the workshop Mr. Bob Scholes summarized the main points that had been raised. He noted that it was important to understand the motivations of the different actors involved in data collection and reporting. He also noted the different experiences that countries have had with biodiversity observations and monitoring and that there was a great potential to learn from each other. He also observed the widespread expression for activities to help move international cooperation on biodiversity data and observation networks forward. In this regard, it was observed that GEO-BON is well positioned to help develop methods and standards for biodiversity observation networks, to help countries and organizations better interact with the earth observations community and to play a capacity building and advocacy role. In conclusion, he thanked the participants for their hard work and enthusiasm.

Annex I

LIST OF PARTICIPANTS

Name	Organization	Country
ABEYKOON R.H.M.P.	Ministry of Environment and Renewable Energy	SRI LANKA
AHUMADA Jorge A.	Betty and Gordon Moore Center for Science and Oceans	USA
AKOUEHOU Gaston	Ministère de l'Environnement et de la Protection de la Nature	BENIN
ARGUEDAS MONTEZUMA Eugenia	Ministerio de Ambiente, Energia y Telecomunicaciones	COSTA RICA
ASCH Jenny	Ministerio de Ambiente, Energia y Telecomunicaciones	COSTA RICA
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BELLO Juan Carlos	Instituto Alexander von Humboldt	COLOMBIA
BIALA Katarzyna	EEA	AUSTRIA
BORGES Teresita	Ministerio de Ciencia, Tecnologia y Medio Ambiente	CUBA
BOZZI Pierluigi	International University Network on Cultural and Biological Diversity	
CHANDLER Mark	Earthwatch	
CHENERY Anna	UNEP-WCMC	
CISPEROS Fernando		BOLIVIA
COOPER David	Secretariat Convention on Biological Diversity	
CUNG Annie	Secretariat Convention on Biological Diversity	
DAVIDSON Nick	The Ramsar Convention on Wetlands	
DAVIES Jonathan W.	Environmental Protection Agency	LIBERIA
DIAS Braulio	Secretariat Convention on Biological Diversity	
DOHKE Teppei	Japan Committee for IUCN	JAPAN
GELLER Gary	NASA and GEO BON	USA
GILL Mike	Environment Canada, GEO BON and CBMP	CANADA
GONZALEZ POSSE Valeria		ARGENTINA
GUAN SAW Leng	Forest Research Institute Malaysia	MALAYSIA
HALPIN Patrick N.	Nicholas School of the Environment – Duke University Marine Lab and	USA

	GEO BON	
HIRSCH Tim	GBIF	
HO LEE Jae	Ministry of Environment of Korea	KOREA
HOBERN Donald	Global Biodiversity Information Facility and GEO BON	
HÖFT Robert	Secretariat Convention on Biological Diversity	
HOLMBERG Carolina	SRC/SWEDBIO	SWEDEN
ISHII Reiichiro	Japan Agency for Marine-Earth Science and Technology	JAPAN
JANISHEVSKI Lisa	Secretariat Convention on Biological Diversity	
JUNGCURT Stefan	IISD-RS	
KARRYEVA Shirin	Ministry of Nature Protection	TURKMENISTAN
KRUG Cornelia	DIVERSITAS	
LARIGAUDERIE Anne	ICSU and GEO BON	
LINN SEIN Htoon	Ministry of Environmental Conservation and Forestry	MYANMAR
LIVOREIL Barbara	Fondation pour la Recherche sur la Biodiversite	FRANCE
LU Xiaoqiang	Nanjing Institute of Environmental Science	CHINA
MOEIRA Alexandra		BOLIVIA
MOONEY Kieran	Secretariat Convention on Biological Diversity	
MOTOHKA Takeshi	Japan Aerospace Exploration Agency	JAPAN
MURANISHI Mariko	Japan Committee for IUCN	JAPAN
NAKASHIZUKA Tohru	Tohoku University and AP BON	JAPAN
NZIGIDAHERA Benoit	Institut National pour l'Environnement et la Conservation de la Nature	BURUNDI
OBISPO Santiago	REDCOM	
OBRECHT Andreas	Bundesamt für Umwelt (BAFU) / Office Fédéral de l'Environnement	SWITZERLAND
OKOUMAROU Kotchitja		TOGO
PACHECO BALANZA Diego	Ministerio de Relaciones Exteriores	BOLIVIA
PAGANINI Marc	European Space Agency and GEO BON	ITALY
PENG Cui	Nanjing Institute of Environmental Science	CHINA

PEREIRA Henrique	German Centre for Integrative Biodiversity Research (Idiv) and GEO BON	GERMANY
PERSIC Ana	UNESCO	
PRIEUR-RICHARD Anne-Hélène	DIVERSITAS	
QUODLING Maureen	Department of the Environment	AUSTRALIA
REDDY C.A.	National Biodiversity Authority	INDIA
RICE Jake	Canadian Government – Fisheries and Oceans	CANADA
RIMAL Sagar		NEPAL
RIZZOTTI Nathalie	Bundesamt für Umwelt (BAFU) / Office Fédéral de l'Environnement	SWITZERLAND
SAEED KHAMIS Abdulqader	Ministry of Industry & Commerce Industry Affairs	BAHRAIN
SCHOLES Robert	Council for Scientific and Industrial Research and GEO BON	SOUTH AFRICA
SECADES Cristina	UNEP-WCMC	
SEOK LEE Jeong	Ministry of Environment of Korea	KOREA
SHIBATA Yasukuni	Ministry of the Environment	JAPAN
SISIOR Gwendalyn K.	Ministry of Natural Resources, Environment and Tourism	PALAU
SMITH Risa	Environment Canada	CANADA
SOLHAUG Tone	Ministry of the Environment	NORWAY
SOLIS ORTIZ Roxana	Ministry of Environment	PERU
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SOUSA PINTO Isabel	Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) and GEO BON	PORTUGAL
STOTT Andrew	Biodiversity and Ecosystem Evidence, DEFRA	UK
TEARIKI-RUATU Nenenteiti	Environment and Conservation Division	KIRIBATI
TELLER Anne	European Commission	
TERRILL Greg	Australian Government Department of the Environment	AUSTRALIA
TUSSIE Gemedo	Institute of Biodiversity	ETHIOPIA
VERGARA Sheila	ASEAN Centre for Biodiversity and GEO BON	
WALKER Natasha (Facilitator)	NWA	GERMANY
WALPOLE Matt	UNEP-WCMC and GEO BON	
WILLIAMSON Leonie	Department of the Environment	AUSTRALIA
