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Item 6 (c) of the provisional agenda*

Work programme of the Platform: knowledge and data

Update on the work on knowledge and data (deliverables 1 (d) and 4 (b))

Note by the secretariat

1. In section II of its decision IPBES-2/5 on the work programme for the period 2014–2018, the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) established a task force on knowledge and data for the period 2014–2018, whose terms of reference are set out in annex III to the decision. The primary purpose of the task force is the implementation of deliverables 1 (d) and 4 (b) of the first work programme.

2. In section II of its decision IPBES-3/1 on the work programme for the period 2014–2018, the Plenary approved the data and information management plan for 2015 prepared by the secretariat, working with the Bureau and the task force, which is set out in annex II to the decision, and requested the secretariat to submit to the Plenary, for information, data and information management plans for each ongoing assessment and to develop data and information management plans in the context of any scoping process or report. Activities to be undertaken under the data and information management plan in 2016 were set out in appendix II to the note by the secretariat on an update on the work of the task force on knowledge and data submitted to the Plenary at its fourth session (IPBES/4/INF/7).

3. The note by the secretariat on work on knowledge and data (deliverables 1 (d) and 4 (b)) (IPBES/5/5) describes the progress made by the task force in all areas of its work and sets out a proposed workplan for 2017 and 2018 as well as suggested action for the Plenary. The annex to the present note provides additional information on progress made by the task force on knowledge and data with regard to the provision of guidance and support pertaining to the use of indicators in IPBES assessments as well as related activities for 2017 and 2018. It is presented without formal editing.

* IPBES/5/1/Rev.1.

Annex

Update on the work of the task force on knowledge and data

I. Overview

1. In order to implement the data and information management plan in 2016 and to respond more effectively to its mandate, the task force on knowledge and data established three task groups (sub-groups of the task force consisting of members of the task force and resource persons), on i) indicators and data for IPBES assessments; ii) a web-based infrastructure in support of data and information management needs; and iii) on knowledge generation catalysis. The current composition of the task force is set out in appendix I. The task force held its third meeting in Bonn, Germany, from 13 to 16 June 2016, and worked intersessionally, mainly through its three task groups. The following sections provide information on the work of the task groups on indicators.

II. Guidance and support regarding the use of indicators in IPBES assessments

A. Introduction

2. According to its terms of reference, the responsibilities of the task force on knowledge and data include to advise on the indicators and metrics to be used in IPBES products and on the standards necessary for capturing and managing associated data. The Plenary, at its fourth meeting, was presented with a draft shortlist of indicators for IPBES regional assessments (IPBES/4/INF/7, appendix V). In preparing the draft shortlist of indicators, it has become evident that there are large gaps in existing indicators relevant to IPBES assessments in terms of evaluating biodiversity, ecosystem services and their links to human well-being that needed to be addressed. Furthermore, assessment authors have voiced the need for support in the use of indicators.

3. The work of the task group on indicators comprises therefore three main elements: (i) the selection of core and highlighted indicators for use in IPBES assessments, (ii) the collaboration with organizations that have developed the selected indicators regarding the provision of information and data related to those indicators, and (iii) the provision of tailored support to assessment authors.

B. Selection of a first set of core and highlighted indicators

4. Quantitative indicators of change in biodiversity, nature's contributions to people and quality of life, and the direct and indirect drivers that underpin these changes represent an important assessment element. The task group on indicators aims to provide the authors of ongoing assessments with a set of indicators that cover all elements of the IPBES conceptual framework. Complementing other forms of information and knowledge that follow general guidelines but are not necessarily harmonized, standardized indicators have the potential to provide a common thread and quantitative point of comparison among assessments. They facilitate the synthesis envisioned for the global assessment, and ensure comparability and coherence across the regional assessments and between the regional/ land degradation and restoration assessments on the one hand, and the global assessment on the other hand. The IPBES set of indicators includes two types of indicators:

(a) a list of **core indicators**, which authors are urged to use (in addition to other indicators or data sources they may choose) in their work;

(b) a list of **highlighted indicators**, which authors may be interested in using, but with no expectation regarding their consistent use in the assessments.

5. Since the fourth session of the Plenary, the task group has finalized the identification of a list of **30 core indicators** (see appendix III) and **42 highlighted indicators** (see appendix IV). The indicators were selected through the following process:

(a) Symposium on biodiversity assessment and support for IPBES, held from 7 to 10 March 2016 in Monte Verita, Switzerland. The symposium was jointly organized by the Future Earth clusters "Global Biodiversity Assessment and Monitoring, Prediction and Reporting" and "Support for IPBES" as a first step in addressing the gaps identified in the list of indicators provided to the fourth session of the IPBES Plenary. The following information was prepared during the symposium:

(i) Tables evaluating the pertinence for IPBES assessments of indicators included in lists from the Ad Hoc Technical Expert Group on Indicators under the

Convention on Biological Diversity, the Biodiversity Indicators Partnership, the Intergovernmental Panel on Climate Change, the National Oceanic and Atmospheric Administration of the United States of America, the list provided to the fourth session of the IPBES Plenary, and additional new indicators not included in these lists. The following 16 criteria were used: Relevance for IPBES framework, global coverage, disaggregation to IPBES regional or sub-regional scales, geographic representativeness, taxonomic representativeness (if applicable), spatial explicitness, comparability across regions, regular and recent updating, comparability with future projections, broad acceptance, scientific or institutional credibility, transparency, sensitivity, timing of the availability of the indicator, accessibility, and available institutional support;

(ii) A list of new indicators that could be mobilised immediately or in the near future for marine systems, freshwater systems, biodiversity and ecosystem conservation status (Aichi Biodiversity Target 12) as well as ecosystem services, and human well-being;

(iii) An explanatory text for each of these indicators, as well as information sheets regarding their use (“fact sheets”).

(b) Review by the IPBES task group on indicators of 200 indicators (141 indicators discussed under the Convention on Biological Diversity, 22 indicators selected by the Future Earth symposium, 12 indicators from the Environmental Performance Index, and 3 indicators that were part of the list of indicators presented to the fourth session of the IPBES Plenary, but not included in any of the previous lists);

(c) Continuation of the scoring exercise by the IPBES task group for the 200 indicators according to the criteria listed above, leading to the selection of 30 core and 42 highlighted indicators.

(d) Review and approval of these indicators by the IPBES knowledge and data task force, with comments addressed by the IPBES task group on indicators.

6. The lists of indicators were endorsed by the Multidisciplinary Expert Panel in July 2016. They were presented to assessment authors before and during the joint second author meeting of the regional assessments and the land degradation and restoration assessment in August 2016. Lists with basic information and links to metadata were distributed to the authors of these assessments.

C. Selection of core and highlighted indicators with a socioeconomic focus

7. The 30 core indicators selected according to the process described in section B did not sufficiently cover socioeconomic (ecosystem services and human well-being) components of the IPBES conceptual framework. Therefore, a group of experts was formed to identify additional indicators with this focus. This process is still ongoing and is expected to continue throughout 2017. The following activities have been undertaken so far:

(a) Selection of a list of 66 potential indicators to inform on each of the different boxes and arrows of the IPBES conceptual framework;

(b) Identification of 80 additional indicators that address different dimensions of well-being and sustainability, including food security, energy security, water security, biodiversity, health, income, trade-offs, livelihoods, justice and equity, resilience and sustainability;

(c) Development of a conceptual approach and use of narratives to identify key indicators that provide information across boxes in the IPBES conceptual framework as well as across dimensions of well-being and sustainability;

(d) Symposium on biodiversity assessment and support for IPBES, held from 7 to 10 March 2016 in Monte Verita, Switzerland. During the symposium, the group reduced the total list of indicators with a socioeconomic focus to 86 that cover both the different boxes of the IPBES conceptual framework and the different dimensions of well-being and sustainability;

(e) Presentation of the 86 indicators at the 2016 GEO BON Open Science Conference, which was held from 4 to 6 July, 2016 in Leipzig, Germany;

(f) Scoring by the expert group of the 86 indicators according to the same 14 criteria listed in paragraph 5 (a(i)) above, resulting in a list of 25 indicators;

(g) Presentation and consultation regarding the 25 indicators during the joint second author meeting of the regional assessments and the land degradation and restoration assessment and the first

author meeting of the global assessment and identification of a list of 18 consensus indicators for review by the task force on data and knowledge;

(h) After agreement by the task force on 15 indicators, presentation of these indicators to the Multidisciplinary Expert Panel at its eighth meeting in October 2016, and recommendation by the Multidisciplinary Expert Panel to the authors of the regional assessments to use a small set of 9 indicators with socioeconomic focus, as far as possible (appendix V);

(i) Request by the Multidisciplinary Expert Panel to continue the work on additional indicators with a socioecological focus for use in the global assessment for an even coverage of the IPBES conceptual framework, including the development of narratives to illustrate their role.

D. Collaboration with organizations in provision of information and data related to indicators

8. The task group on indicators provides comprehensive support to assessment authors in the use of the IPBES core and highlighted indicators. To this end, under the overall guidance of the task group lead, the technical support unit (TSU) on knowledge and data, supported by the Biodiversity Indicators Partnership, is collaborating with the organizations that have developed indicators that are included in the IPBES core and highlighted lists (appendix III and IV) in the provision of indicator associated information and data to assessment authors. The resources provided by the indicator providers are (i) factsheets that contain descriptive and technical information on indicators with reference materials, (ii) visuals and storylines that contain global (and, in some cases, regional) level graphs and maps with brief analyses, and (iii) datasets with values (and sample size and uncertainties, in some cases) at IPBES regional, sub-regional and country levels. The descriptive and visuals/storyline factsheets are intended to orient assessment authors in understanding and using the indicators properly in relevant sections of the assessments.

9. A portal for information and data on IPBES indicators has been made available at www.ipbes.net/indicators. Factsheets and visuals/storylines that have been submitted by the institutes providing the indicators are made available on this portal. The global, regional and land degradation and restoration assessment authors have been informed on the availability of the resources and have been provided with access to the indicators web portal. Additional resources will be posted as they become available.

E. Provision of tailored support to assessment authors

10. The task group on indicators provides assessment authors with tailored support, including the re-calculation of data for IPBES regions and the preparation of maps and graphs. Technically supported by the TSU on knowledge and data, under the guidance of the task group lead, datasets of the IPBES core indicators are further processed to visualize at IPBES regional, sub-regional and country levels for trend analyses and multi-scale, cross-regional comparisons. A workflow is being developed to produce standardized graphs and, as TSU capacity and expertise allows, maps for easy interpretation and integration of core indicators into the drafts of IPBES assessments. There is an effort to put in place a collaboration, via the TSU, between assessment groups and indicator providers in co-producing visuals (graphs and maps) and narratives that are relevant for IPBES assessments.

F. Next steps

11. In terms of the identification of additional indicators with a socioeconomic focus, the following activities are planned:

(a) The expert group working on indicators with socioeconomic focus plans to hold a workshop in April 2017, immediately following the IPBES global workshop on values, to revisit the list of indicators, and develop narratives;

(b) The recommended additional core and highlighted indicators with socioeconomic focus will be reviewed by the IPBES task group on indicators and the IPBES knowledge and data task force, and will be submitted to the IPBES Multidisciplinary Expert Panel for its endorsement;

(c) Collaboration with indicator holding organizations will be initiated regarding information and data associated with the endorsed indicators, and relevant resources will be provided to the assessment authors.

12. In terms of collaboration with organizations and tailored support to assessment authors, the following activities are planned:

(a) Graphs and maps developed in standardized format will be made available to authors through the IPBES indicators portal. Datasets will be made available subject to arrangements with indicator providers.

(b) Visual resources (graphs and maps) will be revised according to specific feedback from the assessment groups and, as much as possible, from indicator providers as a part of the refinement process. The indicator visuals are prepared in support of all ongoing assessments.

Appendix I

List of members and resource persons of the task force on knowledge and data

Role	Name	Task group(s)	Gender	Country
Bureau, co-chair of the task force	Asghar Mohammadi Fazel	Knowledge generation	M	Iran
Bureau, co-chair of the task force	Youngbae Suh	Indicators	M	Republic of Korea
MEP	Yi Huang		F	China
MEP	Mark Lonsdale	Knowledge generation	M	Australia
MEP	Voahangy Raharimalala	Indicators	F	Madagascar
MEP	Yoshihisa Shirayama		M	Japan
MEP	Paul Leadley	Indicators	M	France
Expert	Andras Baldi	Knowledge generation	M	Hungary
Expert	Juan Carlos Bello Silva	Web-based Infrastructure	M	Colombia
Expert	Romain Julliard	Indicators	M	France
Expert	Sandra Knapp		F	United Kingdom
Expert	Catherine Laurent	Knowledge generation	F	France
Expert	Gregory Insarov	Web-based Infrastructure	M	Russia
Expert	Jae Chun Choe	Web-based Infrastructure	M	Republic of Korea
Expert	Walter Jetz	Indicators, Knowledge generation	M	Germany
Expert	Ferenc Horvath	Web-based Infrastructure	M	Hungary
Expert	Nidhi Nagabhatla	Web-based Infrastructure, Knowledge generation	F	India/Canada
Expert	Hiroya Yamano		M	Japan
Expert	Antonio Saraiva	Web-based Infrastructure	M	Brazil
Expert	Luthando Dziba	Web-based Infrastructure	M	South Africa
Expert	Sheila Vergara	Web-based Infrastructure	F	Philippines
Expert	Sheila Mbiru	Web-based Infrastructure	F	Kenya
Expert	James Watson		M	Australia
Expert	Eduardo Dalcin	Web-based Infrastructure	M	Brazil
Expert	Mialy Andriamahefazafy	Knowledge generation	F	Madagascar
Resource Person	Sarah Ivory	Indicators	F	BIP
Resource Person	Anna Chenery	Indicators	F	BIP
Resource Person	Cornelia Krug	Indicators, Knowledge generation	F	University Zuerich, UZH
Resource Person	Patricia Balvanera	Indicators	F	National Autonomous University of Mexico
Resource Person	Carlos Guerra	Web-based Infrastructure	M	GEO-BON
Resource Person	Salvatore Arico	Knowledge generation	M	UNESCO
Resource Person	Anne-Helene Prieur-Richard	Indicators, Knowledge generation	F	Future Earth
Resource Person	Tim Hirsch	Web-based Infrastructure, Knowledge generation	M	GBIF
Resource Person	Kyle Copas	Web-based Infrastructure	M	GBIF
Resource Person	Tim Wilkinson	Web-based Infrastructure	M	UNEP-WCMC
IPBES	HyeJin Kim	Indicators	F	

Role	Name	Task group(s)	Gender	Country
Secretariat (TSU)				
IPBES Secretariat (TSU)	Sungryong Kang	Knowledge generation	M	
IPBES Secretariat (TSU)	Jihyun Yoon	Web-based Infrastructure	F	

Appendix II

List of resource persons of the group working on additional socio-economic indicators

Name	Affiliation	Gender
Patricia Balvanera	National Autonomous University of Mexico, Mexico	F
Paul Leadley	University of Paris, France	M
Cornelia Krug	University of Paris, France	F
Berta Martin-Lopez	Leuphana University, Germany	F
Tuyeni Mwampamba	National Autonomous University of Mexico, Mexico	F
Harini Nagendra	Azim Premji University, India	F
Unai Pascual	Basque Centre for Climate Change (BC3), Spain	M
Fabio Scarano	Conservation International, Brazil	M
Suneetha Subramanian	United Nations University, Japan	F
Katie Brauman	University of Minnesota, UAS	F
Alexandra Marques	Leiden University, The Netherlands	F
Ilse Geijzendorffer	Tour du Valat, France	F
Dan Faith	Australian Museum, Australia	M
Marie Stenseke	University of Gothenburg, Sweden	F
HyeJin Kim	National Institute of Ecology, Korea	F

Appendix III

List of core indicators selected for use in IPBES regional assessments and global assessment

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	LDRA Chapter	Origin[3]	BIP[4]	Source
4	Ecological Footprint	P	DD	2,3,4	4	3	CBD	B	Global Footprint Network
4	Water Footprint (Human appropriation of fresh water)	P	DD	2,3,4	4	3	CBD		Water Footprint Network
4	Percentage of Category 1 nations in CITES	R	IGID	2,3,6	4,6		CBD	BP	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
5	Biodiversity Habitat Index	S	DD, BEF	2,3,4	3,4	4	CBD		GEO BON - CSIRO
5, 12	Species Habitat Index	P,S	DD, BEF	2,3,4	3,4	4	CBD		GEO BON - Map of Life
5	Forest area as a percentage of total land area	S	DD, BEF	2,3,4	3,4	4	CBD	B	FAO
5	Trends in forest extent (tree cover)	S	DD, BEF	2,3,4	3,4	4	CBD		Hansen et al., 2013
5, 7, 14	Total wood removals	S,I	DD, NBP	2,3,4,5,6	2,4,5	5	Future Earth	BP	FAO
6	Trends in fisheries certified by the Marine Stewardship Council	R	IGID	2,3,4	3,4		CBD		Marine Stewardship Council
6	Estimated fisheries catch and fishing effort	P	DD, BEF	2,3,4	3,4		CBD		Sea Around Us
6	Proportion of fish stocks within biologically sustainable levels	S	BEF	2,3	3		CBD	B	FAO
6,14	Inland fishery production	S, I	BEF, NBP	2,3,4	2,4		Future Earth	BP	FAO
6	Marine Trophic Index	S	DD, BEF	2,3,4	3,4		Future Earth	B	Sea Around Us
7	Proportion of area of forest production under FSC and PEFC certification	R	IGID, DD	2,3,4,6	4,6	6	CBD	B	Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC)
7	Nitrogen Use Efficiency	P	DD	2,3,4	4	3	EPI		Lassaletta et al., (2014) from Environmental Performance Index (EPI)
7	Nitrogen + Phosphate Fertilizers (N+P205 total nutrients)	P	DD	2,3,4	4	3	Future Earth	BP	FAO
8	Trends in pesticide use	P	DD	2,3,4	4		CBD	BP	FAO
8	Trends in nitrogen deposition	P	DD	2,3,4	4		CBD	B	International Nitrogen Initiative

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	LDRA Chapter	Origin[3]	BIP[4]	Source
11	Percentage of areas covered by protected areas - marine, coastal, terrestrial, inland water	R	IGID	2,3,6	4,6		CBD	B	UNEP-WCMC, IUCN
5, 11, 12	Protected area coverage of Key Biodiversity Areas (including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites)	R	IGID, DD	2,3,4,6	4,6		CBD	BP	BirdLife International, IUCN, Alliance for Zero Extinction (AZE)
11	Species Protection Index	P,R	IGID, DD	2,3,4,6	4,6		CBD		GEO BON - Map of Life
11	Protected area management effectiveness	R	IGID, DD, BEF	2,3,6	4,6		IPBES	BP	UNEP-WCMC
11	Protected Area Connectedness Index	R	DD, IGID	2,3,4,6	4,6		CBD		GEO BON - CSIRO
12, 14	Biodiversity Intactness Index	P,S	DD, BEF	2,3,4,5	4,5	4	CBD		GEO BON - PREDICTS
12	Red List Index	S	BEF	2,3	3		CBD	B	IUCN, BirdLife International and other Red List Partners
13	Proportion of local breeds, classified as being at risk, not-at-risk or unknown level of risk of extinction	S	BEF, NBP	2,3,4	2,3		CBD	B	FAO
14	Percentage of undernourished people	I	GQL	2,3,4	2	5	Future Earth	BP	FAO
17	Number of countries with developed or revised NBSAPs	R	IGID	2,3,6	4,6		CBD	B	Secretariat of the Convention on Biological Diversity (CBD)
19	Proportion of known species assessed through the IUCN Red List	R	IGID	2,3,6	4,6		CBD	BP	IUCN
19	Species Status Information Index	R	IGID, BEF	2,3,6	4,6		CBD		GEO BON - Map of Life

[1] DPSIR - D: Drivers, P: Pressure, S: Status, I: Impact, R: Response

[2] CF (Conceptual Framework) - DD: direct driver, NBP: nature's benefit to people/ ecosystem goods and services, BEF: nature/biodiversity and ecosystem functions, IGID: institutions, governance and other indirect drivers, GQL: good quality of life/human well-being

[3] CBD: Convention of Biological Diversity SBSTTA 20 draft indicator list; Future Earth: recommended by Future Earth indicator group; EPI: used in the Yale Environmental Protection Index; IPBES: added by the IPBES Task Force for Data and Knowledge

[4] BIP (Biodiversity Indicator Partnership): B: indicators in BIP global suite, BP: data/indicator holder in BIP partnership

Appendix IV

List of highlighted indicators selected for use in IPBES regional assessments and global assessment

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	Origin[3]	BIP[4]	Source
2	Number of countries implementing natural resource accounts, excluding energy, within the System of Environmental-Economic Accounting (SEEA)	R	IGID	2,3,6	4,6	CBD		UNSTATS, World Bank
3	Number of countries with national instruments on biodiversity relevant tradable permit schemes	R	IGID	2,3,6	4,6	CBD	BP	OECD
3	Number of countries with national instruments on biodiversity-relevant taxes, charges and fees	R	IGID	2,3,6	4,6	CBD	BP	OECD
3	Number of countries with national instruments on REDD plus schemes	R	IGID	2,3,6	4,6	CBD		UNFCCC
3	Trends in potentially harmful elements of government support to agriculture (produced support estimates)	R	IGID	2,3,6	4,6	CBD	B	OECD
3	Trends in potentially harmful elements of government support to fisheries	R	IGID	2,3,6	4,6	CBD	BP	OECD
4	Human appropriation of net primary productivity	P	DD	2,3,4	4	CBD		Krausmann et al., 2013
4	Trend in Carbon Intensity	R	IGID	2,3,6	4,6	EPI		WRI, WB, IEA from Environmental Performance Index (EPI)
5, 12	Global climate risk Index	D,I	DD,NBP	2,3,4	2,4	Future Earth		germanwatch.org
5, 14	Wetland Extent Trend Index	S	BEF,NBP	2,3,4	2,3	IPBES	B	UNEP-WCMC
5-12, 14	Living Planet Index	S	BEF	2,3	3	CBD	B	WWF/ZSL
6	BioTime-Local Species Richness, Temporal Species Turnover, Overall Abundance	S	BEF	2,3	3	Future Earth		Dornelas et al., 2014
6	Coverage of fisheries with management measures to reduce bycatch and discards	R	IGID	2,3,6	4,6	CBD	BP	FAO
6	Global effort in bottom trawling	P	DD	2,3,4	4	CBD		Around the Sea
6	Mean length of fish	S	BEF	2,3	3	Future Earth		Shin et al., 2010
6	Non declining exploited species	S	BES	2,3,4	3,4	Future Earth	BP	Kleisner et al., 2015

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	Origin[3]	BIP[4]	Source
6	Number and coverage of stocks with adaptive management systems / plans	R	IGID	2,3,6	4,6	CBD	BP	FAO
6	Policies make adequate provisions to minimize impacts of fisheries on threatened species.	R	IGID	2,3,6	4,6	CBD	BP	FAO
6	Policies to secure that mortalities and significant indirect adverse impacts on non-species are accounted for are in place	R	IGID	2,3,6	4,6	CBD	BP	FAO
6	Presence of regulations requiring recovery of depleted species	R	IGID	2,3,6	4,6	CBD	BP	FAO
6	Proportion of predatory fish	S	BEF	2,3	3	Future Earth		Shin et al., 2010
7	Areas of agricultural land under conservation agriculture	P,R	IGID,DD	2,3,4,6	4,6	CBD	BP	FAO
7	Nitrogen Use Balance	P	DD	2,3,4,5	4,5	EPI		Zhang et al. 2015
7	Number of world natural heritage sites per country per year	P	NBP,IGID,GQL	2,3,4,6	2,4,6	Future Earth		UNESCO
7	Proportion of agricultural area under productive and sustainable agriculture (indicator for SDG 2.4)	P,R	IGID,DD	2,3,4,6	4,6	CBD	BP	FAO
9	Trends in invasive alien species vertebrate eradications	R	IGID	2,3,6	4,6	CBD	B	IUCN ISSG, Island Conservation
9	Trends in the numbers of invasive alien species introduction events	P	DD	2,3,4	4	CBD	B	IUCN ISSG
11	Protected area coverage of terrestrial, marine and freshwater ecoregions	R	IGID,BEF	2,3,6	3,4,6	CBD	B	UNEP-WCMC
11	Protected Area Representativeness Index	P,R	IGID,DD	2,3,4,6	4,6	CBD		GEO BON-CSIRO
11	The Wildlife Picture Index (disaggregated by protected area)	S,I,R	IGID,DD,BEF	2,3,4,6	3,4,6	CBD	B	Tropical Ecology Assessment and Monitoring (TEAM) Network
12	Mean Species Abundance (GLOBIO3)	S	BEF	2,3,4,5	3,5,7	Future Earth		Alkemade et al., 2009
12	Number of species extinctions	S	BEF	2,3	3	CBD	B	IUCN, BirdLife International and others
12	RAMSAR areas	S	BEF,IGID	2,3,6	3,4,6	Future Earth	BP	RAMSAR
14	Better Life Index	I	GQL	2,3,4	2	CBD	BP	OECD

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	Origin[3]	BIP[4]	Source
14	Percentage of population using safely managed drinking water services (indicator for SDG 6.1)	I	GQL	2,3,4	2	CBD		WHO, UNICEF
14, 15	Land under cereal production (ha)	I	NBP,DD	2,3,4	2,4	Future Earth		World Bank (WB)
15	Global Ecosystem Restoration Index	S	IGID,BEF	2,3,6	2,4,6	CBD		GEO BON, iDiv
16	Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	R	IGID	2,3,6	4,6	CBD	BP	Secretariat of the CBD
18	Global Index of Linguistic Diversity and language threat level.	S	BES,NBP	2,3,4	2,3	CBD	B	Teralingua
19	Growth in species occurrence records accessible through GBIF	R	IGID	2,3,6	4,6	CBD	B	GBIF
19	Species represented in the barcode of life data system	S,R	IGID	2,3,6	4,6	CBD		Barcode of Life Data Systems
20	Information provided through the financial reporting framework, adopted by decision XII/3	R	IGID	2,3,6	4,6	CBD	BP	Secretariat of the CBD

[1] DPSIR - D: Drivers, P: Pressure, S: Status, I: Impact, R: Response

[2] CF (Conceptual Framework) - DD: direct driver, NBP: nature's benefit to people/ ecosystem goods and services, BEF: nature/biodiversity and ecosystem functions, IGID: institutions, governance and other indirect drivers, GQL: good quality of life/human well-being

[3] CBD: Convention of Biological Diversity SBSTTA 20 draft indicator list; Future Earth: recommended by Future Earth indicator group; EPI: used in the Yale Environmental Protection Index; IPBES: added by the IPBES Task Force for Data and Knowledge

[4] BIP (Biodiversity Indicator Partnership): B: indicators in BIP global suite, BP: data/indicator holder in BIP partnership

Appendix V

List of socioeconomic indicators recommended for use in IPBES regional assessments

Aichi Target	Specific Indicator	DPSIR[1]	CF[2]	GA Chapter	RA Chapter	Origin[3]	BIP[4]	Source
Institutions, Governance and other Indirect Drivers								
	Total human population	P	IGID	2,3,6	4,6	Future Earth (S)		World Bank
	GDP	S	IGID	2,3,4	4,6	Future Earth (S)		World Bank
Good Quality of Life								
14	Food Security: Countries requiring external assistance for food (famine relief)	S	GQL	2,3,4	2	Future Earth (S)	BP	FAO
14	Food Security: Calorie supply per capita (kcal/capita.day)	S	GQL	2,3,4	2	Future Earth (S)	BP	FAO
14	Water Security: Proportion of population using safely managed drinking water services (SDG 6.1.1)	S	GQL	2,3,4	2	CBD		UNICEF/WHO
14	Water Security: Freshwater consumption as % of total renewable water resources/watershed	S	GQL	2,3,4	2	Future Earth (S)	BP	FAO
	Equity: GINI index	S	GQL	2,3,4	2	Future Earth (S)		World Bank
Nature's Benefit to People								
14	Food: World grain production by type/capita.year	S	NBP	2,3,4	2	Future Earth (S)	BP	FAO
18	Non-material NBPs: Index of Linguistic Diversity (ILD)	S,P	NBP, IGID	2,3,4,6	2,4,6	CBD	B	UNESCO

[1] DPSIR - D: Drivers, P: Pressure, S: Status, I: Impact, R: Response

[2] CF (Conceptual Framework) - DD: direct driver, NBP: nature's benefit to people/ ecosystem goods and services, BEF: nature/biodiversity and ecosystem functions, IGID: institutions, governance and other indirect drivers, GQL: good quality of life/human well-being

[3] CBD: Convention of Biological Diversity SBSTTA 20 draft indicator list; Future Earth: recommended by Future Earth indicator group; EPI: used in the Yale Environmental Protection Index; IPBES: added by the IPBES Task Force for Data and Knowledge

[4] BIP (Biodiversity Indicator Partnership): B: indicators in BIP global suite, BP: data/indicator holder in BIP partnership