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Consideration of the modalities and institutional arrangements for an intergovernmental science-policy platform on biodiversity and ecosystem services: work programme of the platform

Options for implementing the knowledge generation function of the intergovernmental science-policy platform on biodiversity and ecosystem services

Note by the secretariat

The annex to the present note sets out a report by the secretariat on options for implementing the knowledge generation function of the intergovernmental science-policy platform on biodiversity and ecosystem services. The report is presented in the annex in English only and, apart from the executive summary, without formal editing. The executive summary, in the six official languages of the United Nations, is presented in document UNEP/IPBES.MI/1/INF/3. The report has been produced by the secretariat in collaboration with the United Nations Educational, Scientific and Cultural Organization, the United Nations Development Programme, the United Nations Environment Programme World Conservation Monitoring Centre and the Food and Agriculture Organization of the United Nations.

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Annex

Options for implementing the knowledge generation function of the intergovernmental science-policy platform on biodiversity and ecosystem services

Executive summary

1. The outcome document of the third ad hoc intergovernmental and multi-stakeholder meeting on an intergovernmental science-policy platform on biodiversity and ecosystem services, known as the "Busan outcome", states that the proposed platform should:

> identify and prioritize key scientific information needed for policymakers at appropriate scales and catalyze efforts to generate new knowledge by engaging in dialogue with key scientific organizations, policy makers and funding organizations, but should not directly undertake new research."

2. Current coordinated initiatives supporting the generation of policy-relevant scientific information include those of global research programmes such as the International Council for Science, the United Nations Educational, Scientific and Cultural Organization, the Academy of Sciences for the Developing World and others. Various continuing and recently completed assessment initiatives and periodic reports on the state of the environment, along with a large number of other intergovernmental and international science programmes generating knowledge on biodiversity and ecosystem services, have also contributed significantly to identifying knowledge gaps that such research programmes have addressed. In addition, a range of monitoring initiatives has been established to support policy-relevant knowledge generation, including the GEO Biodiversity Observation Network, the Biodiversity Indicators Partnership and others. Such programmes aim to assess the state of knowledge, including through the identification of any gaps; the global research programmes also support the generation of new research to fill such gaps.

3. While such initiatives are of great value, further efforts to generate and keep current a base of scientific information on biodiversity and ecosystems are required. In particular, there is a need to build a common and shared knowledge base that identifies gaps in knowledge and catalyses efforts to fill such gaps through new scientific research. There are a number of options for implementing this element of the work programme building on existing activities. Potential activities could address the following:

(a) Filling fundamental knowledge gaps concerning the dynamic interactions between drivers of change, ecosystems and human well-being;

(b) Filling significant gaps in long-term observation and monitoring programmes, in particular with regard to data and information on interactions between drivers of change, ecosystems and human well-being;

(c) Ensuring common and regularly reviewed guidance on a strategic approach to policy-relevant research, including ensuring that the most important needs for scientific information to support more effective governance at all levels are being identified and responded to in a coordinated manner;

(d) Ensuring the effective incorporation of different types of knowledge into the platform knowledge base, including the incorporation of knowledge from other sectors and disciplines, non-formal knowledge and mutual learning;

(e) Improving access to data, information and knowledge of all types that are already available, but with currently restricted access.

4. The knowledge generation element of the work programmewill be mutually supportive of the assessment, capacity-building, policy tool and methodology functions of the work programme, and a synergy that can be enhanced through planning and processes that are put in place for the work programme's delivery. Information on knowledge gaps is a key output from the assessment process because it clearly identifies the information needs of policymakers that new research must meet. It is therefore important for knowledge generation that the platform's assessments identify scientific information needed by policy makers. These assessments must identify gaps in scientific knowledge that can then be the focus of efforts to catalyse new knowledge through scientific research. In addition,

an important function of the platform might be to identify and prioritize knowledge that is available for assessment. Such a function could be implemented through a scoping process analogous to that undertaken for assessments for the Intergovernmental Panel on Climate Change, which would determine the availability of scientific information and identify gaps therein.

5. There are a number of options for implementing the knowledge-generation functions of the platform. These could include:

(a) Establishing a working group to identify gaps in scientific information and to work with scientific institutions and donors to catalyse the filling of such gaps;

(b) Establishing expert groups to deal with specific aspects of the knowledge-generation work programme;

(c) Establishing a science panel to oversee the knowledge-generation element of the platform's work programme;

(d) Developing a work programme to identify gaps and catalyse knowledge generation;

(e) Incorporating the knowledge generation function as one of the tasks of the platform's secretariat.

6. The plenary may wish to consider how this element of the work programme will build on existing initiatives of key scientific organizations and science funding organizations in to support of efforts to identify and prioritize needs for scientific information and to catalyse efforts to fill remaining gaps.

1. Context and mandate

1. The Busan Outcome states that "*[t]he new platform should identify and prioritize key scientific information needed for policymakers at appropriate scales and catalyze efforts to generate new knowledge by engaging in dialogue with key scientific organizations, policymakers and funding organizations, but should not directly undertake new research.*"[1] Identifying and prioritizing key scientific information and catalyzing efforts to generate new knowledge will, therefore, constitute one of the main functions of IPBES, along with the Platform's functions related to assessment, policy responses and capacity building.

2. This document aims at providing options related to the knowledge generation function of the Platform. The current section includes a summary of previous discussions relevant to this function held at the three intergovernmental and multi-stakeholders meetings on IPBES. Section 2 contains a brief overview of and lessons learned from relevant ongoing initiatives. Section 3 focuses on gaps, needs and opportunities related to this function. Section 4 of the document introduces potential activities for an IPBES work programme on knowledge generation. Section 5 illustrates potential relationships with other functions of the Platform and with relevant initiatives. Section 6 suggests possible options related to institutional and administrative arrangements needed for carrying out the knowledge generation function of IPBES.

3. For the purpose of this document and consistent with the Busan Outcome, 'knowledge generation' will be used hereinafter to indicate IPBES' efforts related to identifying and prioritizing key scientific information needed for policymakers at appropriate scales and to catalyzing efforts to generate new knowledge by engaging in dialogue with key scientific organizations, policymakers and funding organizations, while not directly undertaking new research. The generic terms 'science' and 'scientific knowledge' which are used in the document encompass natural sciences, social sciences, economics as well as relevant applied sciences.

4. At the first meeting on IPBES (Putrajaya, November 2008), several participants expressed the view that the Platform should not be used to generate new knowledge, but rather to compile and synthesize existing information to identify gaps and uncertainties in knowledge. Many participants agreed that the role of a science-policy platform should be to compile, assess and synthesize existing scientific knowledge, thereby indentifying areas of science requiring further development.

5. At the second meeting on IPBES held in Nairobi in 2009, there was agreement that a strengthened science-policy interface needed knowledge generation (collaboration and coordination for common and shared knowledge bases); knowledge assessments (regular and timely assessments to generate and disseminate policy-relevant but not policy-prescriptive advice with full and equal involvement of experts from all regions of the world); knowledge use (support for policy development and implementation); and capacity building to enhance the science-policy interface and mainstream biodiversity and ecosystem services for human well-being (e.g. poverty eradication, food, water and energy security).

6. Participants also acknowledged the urgent need to strengthen the generation of scientific information at the national, regional and global levels, building upon existing scientific networks. They also stressed the importance of local and traditional knowledge, along with other forms of knowledge, to inform policy processes to ensure that the outcomes (research, data and tools, and good practices for the sustainable use of biodiversity and ecosystem services) were useful to users at all levels. An interdisciplinary and multidisciplinary approach encompassing catalysing social and economic research efforts was seen as essential.

7. The need to adopt a bottom-up approach in knowledge generation to ensure that it was not only the scientific or policy community that determined the needs, but also the broader user community, was identified. Specific needs identified in relation to knowledge generation included access to data and knowledge, e.g., free and open online access to journals, virtual libraries, geo-referenced data and satellite data.

8. Some of the principles guiding the work of the Platform that were agreed upon in Busan are relevant to knowledge generation, including the need for IPBES to:

- collaborate with networks of scientists and knowledge holders;

[1] Paragraph 6 (b) of the Busan Outcome.

- recognize and respect the contribution of indigenous and local knowledge to the conservation and sustainable use of biodiversity and ecosystems;

- recognize the unique biodiversity and scientific knowledge thereof within and among regions; and,

- take an interdisciplinary and multidisciplinary approach that incorporates all relevant disciplines, including social and natural sciences.

9. On the basis of discussions on the knowledge generation of IPBES so far, it is evident that the identification and prioritization of relevant knowledge needed to fill gaps in scientific information, and the catalysing of efforts to fill such gaps will be key to the work of the Platform.

2. Brief overview of experiences and reflections from existing initiatives

10. A few selected examples of experiences relevant to knowledge generation are provided here. Although there are numerous other examples of organizations and institutions involved in knowledge generation, the lessons learned in the experiences below will provide a sufficient introduction to how the identification of key scientific information needed for policymakers at appropriate scales can be identified and efforts to generate new knowledge catalyzed. IPBES will need to build on these and other efforts and to use their experiences in relation to knowledge generation.

Lessons from current and past assessments

11. The Intergovernmental Panel on Climate Change (IPCC) prepares in regular intervals comprehensive assessments of the state of knowledge on climate change. It also prepares special reports and methodology reports. The IPCC however does not do any research or monitoring. It relies on variety of means to identify and prioritize key scientific, technical and socioeconomic information needed for policymakers. These include both identifying the assessment needs, including by inviting governments and observer organizations to submit their views on what should be covered by upcoming reports, but also a process by which gaps in knowledge are identified, and considered in the assessment process.

12. Requests for assessment received by the IPCC are considered along with other aspects, such as emerging science and expert judgment, during a scoping process which identifies scope and content of an IPCC assessment report. The results of the scoping process, which may involve a scoping meeting and further comments from governments, organizations and experts, are submitted for consideration by the IPCC Plenary. The scoping process has evolved over time and has become a unique feature of all IPCC reports. Catalyzing efforts to generate new knowledge is, in the case of IPCC, a function of the findings of the IPCC assessment reports as some of these findings have pointed out at gaps in fundamental and applied knowledge to be addressed by the scientific community through further scientific research.

13. Past scientific assessments such as the Millennium Ecosystem Assessment (MA) (2001-2005) and the International Assessment on Agricultural Science and Technology for Development (IAASTD, 2005-2008) have also identified gaps in scientific information. Both the MA and the IAASTD identified and prioritized key scientific information needed for policymakers at appropriate scales through the development of a tailored conceptual framework and a dedicated methodology; these were instrumental in guiding the assessment process of identifying and prioritizing key scientific information at appropriate scales.

14. The MA also identified a number of gaps in scientific information on biodiversity and ecosystem services, and catalyzed the development of a new research programme based on identified gaps in fundamental knowledge on the response of socio-ecological systems to changes in biodiversity and ecosystem services. A Programme on Ecosystem Change and Society (PECS)2 was set-up by the International Council for Science (ICSU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) to fill such fundamental knowledge gaps.

15. The MA catalyzed the generation of knowledge through multi-scale assessments; during the MA, 18 approved multi-scale assessments and 18 associated multi-scale assessments were initiated. A network of Sub-Global Assessments (SGA network) was established as part of the MA follow-up process, which currently includes more than 70 multi-scale assessments around the world.

[2] http://www.icsu.org/what-we-do/interdisciplinary-bodies/pecs/?icsudocid=about.

16. The IAASTD did not catalyse a new international research programme on agriculture per se but has indirectly contributed to the development of a Platform for Agrobiodiversity Research led by Bioversity International, which is part of the Consultative Group on International Agricultural Research (CGIAR). It is not evident, however, the extent to which the IAASTD may have informed the CGIAR research agenda or how it may have had an impact on directing funding.

17. The Economics of Ecosystems and Biodiversity (TEEB) identified, prioritized and synthesized key ecological and economic information to structure the valuation of ecosystem services under different scenarios through recommended valuation methodologies adapted to different contexts. It enabled easy access to information and tools for improved biodiversity-related business practice in order to manage risks, and measure business impacts on ecosystems and biodiversity. The TEEB follow-up process is particularly focused on supporting the generation of knowledge at the national level.

Lessons from periodic reports on the state of biodiversity and ecosystem services

18. The Global Environment Outlook (GEO) process conducts periodic reviews of the state of the global environment. The process used by GEO to identify and prioritize key scientific information needed for policymakers is based on a network of UNEP Collaborating Centre partners at the national and regional levels. GEO engages in active dialogue with key scientific organizations, including in the identification of emerging issues affecting the environment that may require further research.

19. The Third Global Biodiversity Outlook (GBO) (2010) drew from a range of information sources, including more than 110 fourth national reports provided by Parties to the Convention on Biological Diversity, and a study of scenarios and models regarding biodiversity in the 21st century. In addition to summarizing the latest data on status and trends of biodiversity, GBO also points at gaps in scientific knowledge that are needed to be filled for future strategic actions, namely those relating to potential tipping points for biodiversity and ecosystem services.

Other intergovernmental and international scientific programmes

20. Several of UNESCO's science programmes address issues related to biodiversity and ecosystem services. Examples of programmes relating to specific areas are the International Hydrological Programme (IHP) and the World Water Assessment Programme (WWAP), in relation to freshwater resources and systems; the science programme of the Intergovernmental Oceanographic Commission (IOC), which deals inter alia with inventorying of marine biodiversity and the generation of knowledge on ocean processes affecting marine biodiversity; and the Man and the Biosphere (MAB) Programme, which foster international cooperative research on terrestrial biodiversity and ecosystem services in the World Network of Biosphere Reserves.

21. In the context of these programmes, key scientific information is identified and prioritized with the help of expert groups and through the design of global and regional research programmes that require cooperation among governments and science partners. IHP, IOC and MAB rely on a system of national committees in order to catalyze efforts to generate new knowledge by engaging in dialogue with key national scientific organizations, policymakers and funding organizations.

22. The global observing systems for climate (GCOS), oceans (GOOS) and terrestrial systems (GTOS) are home to important work related to the standardization of monitoring methodologies, the calibration of observational data, the provision of reports highlighting the availability of scientific information in support of relevant provisions under the MEAs (in particular, UNFCCC and increasingly the CBD), and capacity building for monitoring. Identification of key scientific information is partly based on global underpinning research programmes on climate, ocean and terrestrial systems; new knowledge is generated also through time-series observations which de facto represent research efforts repeated over time.

23. The Biodiversity Observation Network of the Group on Earth Observations (GEO BON) is the biodiversity component of the Global Earth Observation System of Systems (GEOSS). The Network draws on GEO's work on data-sharing principles and on technical standards for making data interoperable; its main goal is to provide a mechanism to gather and share data and information on observations of biodiversity and ecosystem services. Over 100 governments and non-governmental organizations are collaborating through GEO BON to make their biodiversity data, information and forecasts more readily accessible to policymakers, managers, experts, and other users.

24. ICSU (in cooperation with others) hosts a family of international research programmes aimed at understanding the dynamics and consequences of global change. Those most directly relevant to the generation of knowledge on biodiversity and ecosystem services are the DIVERSITAS Programme on biodiversity and ecosystem services, and The International Human Dimensions Programme on Global

Environmental Change (IHDP). These programmes address knowledge gaps by communicating information on such gaps to the wider scientific community and national funding agencies, and by coordinating the design of scientific research on key gaps that require global coordination. The International Geosphere-Biosphere Programme (IGBP) also contributes to elucidating issues related to global change having an impact on biodiversity and ecosystem services. These programmes provide platforms for organizing the international research agenda.

25. The Academy of Sciences for the Developing World (TWAS) fosters scientific capacity and excellence for sustainable development in the South; it achieves this by promoting the sharing of scientific information and cooperation in science between South-South and North-South countries. TWAS plays a role in identifying and prioritizing key scientific information needed for policymakers at appropriate scales by undertaking projects that are integrative in nature aiming at connecting the natural, social and engineering sciences with multiple stakeholders at diverse geographic and temporal scales; and in identifying gaps related to the North-South knowledge asymmetry, capacity divide, and geographical variations in capacity relevant to science-policy interfaces.

Issues related to the contribution of local and indigenous knowledge systems to knowledge generation

26. In carrying out its work IPBES should, in line with the Busan Outcome, "recognize and respect the contribution of indigenous and local knowledge to the conservation and sustainable use of biodiversity and ecosystems".

27. A large part of the world's domesticated and managed biodiversity has been shaped by indigenous and local communities. This includes hundreds of varieties of paddy and upland rice that have been cultivated for millennia across Asia, their equivalent across the Andean region in the form of potatoes and maize, the diversity of taros and sweet potatoes across the Pacific, and the diversification of camelid, bovine, ovine, porcine, avian and other livestock.

28. The creative role of traditional cultures extends beyond the genetic and species level to include the transformation and management of ecological systems. Diversified landscapes, for example, are created and maintained in tropical, temperate and boreal forests and savannahs, through the judicious, socially and culturally controlled application of both manpower and natural forces such as fire. 'Firestick management', as applied by generations of Aboriginal hunter-gathers, has shaped the savannah landscapes of Australia and elsewhere and been instated as the official management tool for protected areas because of its indispensable and scientifically-recognized role in creating and maintaining biodiversity in many ecosystems.

29. In many cases and specific circumstances, indigenous and local communities hold in-depth knowledge relating to wild biodiversity, such as knowledge and know-how pertaining to the agricultural and medicinal values of plant and animal species, as well as their cultural and spiritual values.

30. In view of the above, IPBES has a role to play in recognizing holders of indigenous and local knowledge, alongside scientists, as key sources of information and understanding to assess, conserve and sustainably use biodiversity from local to global levels. This knowledge, whether referred to as indigenous, local, traditional or community-based, is not static and fixed. While anchored in culturally-specific philosophies and worldviews, it remains dynamic, innovative and adaptive, and thus responds to changing ecological, societal and political realities.

31. While indigenous and local knowledge of biodiversity has been extensively documented in the scientific and grey literature during the last several decades, the diversity of indigenous and local peoples and the breadth of their knowledge mean that this literature only reflects a fraction of the knowledge that exists. Furthermore, like science, holders of indigenous and local knowledge work from a foundation of experience, understanding and data, but also generate new knowledge in new settings and in response to new challenges.

32. Bridging across knowledge systems in a manner that capitalizes on opportunities for positive synergies, while acknowledging strengths and limitations of both indigenous and scientific knowledge systems, will be one of the major challenges for IPBES and an indicator of its success, and relevant indigenous and local knowledge to be used by IPBES, similarly to scientific knowledge, will need to be subjected to an appropriate peer review process.

3. Gaps, needs and opportunities for knowledge generation in IPBES

33. The IPBES Gap Analysis (UNEP/IPBES/2/2) provided an overview of gaps in the science-policy interface on biodiversity and ecosystem services, and identified the need to build a common and shared knowledge base. It was stressed that facilitating opportunities for building such a common knowledge base could therefore be seen as one of the core functions of the broader science-policy interface.

34. Those elements considered essential for a knowledge base on biodiversity and ecosystem services included basic knowledge needs; processes for the incorporation of different types of knowledge; guidance on research strategies and long-term observation and monitoring systems; methodologies that will enable standardisation and consistent application of data gathering to inform assessments; and availability and accessibility to data and information.

35. The starting point here for purpose of identifying gaps and needs related to the knowledge generation function of IPBES is the 3rd finding in the Gap Analysis, related to a common and shared knowledge base:

> *Finding No 3:* Although an extensive knowledge base exists to support decision-making in each of the many science-policy interfaces, shared frameworks, methodologies and basic understandings to respond to the complex nature of biodiversity and ecosystem services issues remain missing or incompletely implemented. There are also significant gaps in knowledge that need to be filled.
>
> a) *Finding No. 3.1*: Notwithstanding the considerable progress in and growth of the relevant sciences, some fundamental knowledge gaps exist, in particular with regard to the dynamic interactions between drivers of change, ecosystems and human well-being. This is of particular concern at the regional, national and local scales where many of the most important interactions of this nature occur and where human well-being depends most directly on ecosystem services;
>
> b) *Finding No. 3.2*: Although a range of institutions support the development of research strategies to meet policy needs, there is currently no process providing common and regularly reviewed guidance on a strategic approach to research to ensure that the most important needs in terms of knowledge to support more effective governance at all levels are being identified and responded to in a coordinated manner;
>
> c) *Finding No. 3.3*: While awareness of the need to draw more systematically on a broad range of knowledge types is growing, there remains a lack of processes for ensuring the effective incorporation of types of knowledge into the knowledge base, including the incorporation of knowledge from other sectors and disciplines, non-formal knowledge and mutual learning;
>
> d) *Finding No. 3.4*: Notwithstanding continuing efforts, there remain significant gaps in long-term observation and monitoring programmes, in particular as regards data and information on interactions between drivers of change, ecosystems and human well-being, and on particular geographic regions;
>
> e) *Finding No. 3.5*: While progress has been made, there remain significant barriers to the effective use of existing data and knowledge resulting from institutional and technical impacts on both the availability of data and information and on the ability of users to gain access to such data and information in meaningful ways.

4. Potential activities for the knowledge generation function of IPBES

36. Potential activities that might be undertaken to respond to the gaps identified in the Gap Analysis are outlined below. It is evident that some of the identified potential activities may fall under the work programmes on assessment, policy responses and capacity building, depending on the final structure of the IPBES work programme.

Filling fundamental knowledge gaps, in particular with regard to the interactions between drivers of change, ecosystems and human well-being (Gap Analysis Finding No 3.1)

37. IPBES will encourage and help catalyze research programmes that can help address fundamental knowledge gaps. The conceptual framework, methodology and gaps in knowledge, as well as the identification of emerging issues will all inform the further design and implementation of

relevant research initiatives aimed at filling current fundamental gaps in knowledge on biodiversity and ecosystem services.

38. To this end, the IPBES Plenary or Knowledge Generation working group may ask the scientific community to address issues requiring further research. Additionally, the knowledge management platform proposed in the Policy Support Information Document could assist in matching the demand for scientific information from IPBES users with the capacity provided by existing research programmes.

39. The following potential activities might be considered:

i. Develop an IPBES conceptual framework and methodology to guide the work of relevant research initiatives to fill fundamental gaps in knowledge on biodiversity and ecosystem services and their relevance to human well-being

ii. Compile a list of emerging issues identified through the IPBES oversight function. Horizon scanning or a foresight process may provide a useful tool to assist the Plenary in this task.

iii. Compile gaps in scientific information identified through assessments in the IPBES knowledge management platform to be matched by the offers provided by relevant research endeavours.

Providing guidance on a strategic approach to research to ensure that the most important needs in terms of knowledge to support more effective governance at all levels are being identified and responded to in a coordinated manner (Gap Analysis Finding No. 3.2)

40. In this regard, there is a need to improve coordination and to facilitate collaboration across and between various scientific networks and donors, so as to benefit from a coherent and cohesive knowledge generation strategy of direct relevance to IPBES.

41. In addition to issues related to access to data and information (see section e of potential activities, below), the knowledge generation function of IPBES is also dependent on the degree to which existing knowledge is organized. While it is the nature of the wide range of topics that relevant to IPBES that knowledge is fragmented, the IPBES assessments will provide an overview of what is known, what is unknown and what is uncertain, recognising the value of a diversity of views and approaches in science.

42. Finding 5.1 of the Gap Analysis states that there is significant potential to improve the effectiveness of science-policy interfaces through more coherent coordination within and across their various functions, integrating such aspects as research strategies, assessments, knowledge-brokering and capacity-building. The proposed knowledge management platform might assist in a strategic approach to research supporting the work of IPBES.

43. A recent informal meeting of scientific organizations interested in IPBES convened by ICSU (UNESCO, Paris, 10 June 2011) recommended that:

- As part of the knowledge generation function of IPBES, regular exchanges should take place between scientists and policymakers to develop an understanding of what knowledge is required, so that this can be taken up by research strategies and funding priorities. A central role of the generation of knowledge function of IPBES might be to organize these dialogues, in order to catalyze the production of relevant knowledge.

- The knowledge generation function might entail communicating information on gaps to the wider scientific community, funding agencies, and capacity building community at large; and to further define gaps at relevant scales (regional, disciplinary, etc.). The former could be addressed through the above-mentioned dialogues, while the latter through a strategic partnership between the Platform and the SGA network (see also the Assessment Information Document). IPBES will carry a facilitator role, brokering new research and relevant assessments identified as important to improve its functioning and effectiveness.

44. The scientific community will also coordinate beyond the scope of IPBES, to ensure that its knowledge generation strategy addresses gaps identified by IPBES in a coordinated and strategic manner. The IPBES Plenary may encourage the scientific community to engage in the development of such a knowledge generation strategy. The strategy would facilitate the alignment of the knowledge generation work programme of the platform with the work programmes of scientific networks and donors.

45. The following potential activities might be considered:

i. Conduct a rapid assessment of current initiatives based on an update of the information provided in the Gap Analysis

ii. Facilitate a review of assessment methodologies to enable consistent status and trend measurement using standardized and transferable metrics

iii. Conduct surveys of user needs, building on the Gap Analysis, and analyses to evaluate to which extent scientific information is assimilated and adopted by policymakers at various levels

iv. Organize dialogues with a view to promote regular exchanges between scientists, donors and policymakers and with the scientific advisory bodies to the MEAs to develop an understanding of what knowledge is required and to identify related funding priorities

v. Enter into a strategic partnership with the SGA network so as to further define gaps at relevant scales

vi. Encourage and collaborate with the scientific community active in research in the development of a coherent knowledge generation strategy that will guide further research on biodiversity and ecosystem services

vii. Collaborate with funding agencies in the development of an enhanced funding strategy for research and monitoring

Ensuring the effective incorporation of different relevant types of knowledge into the knowledge base, including the incorporation of knowledge from other sectors and disciplines, non-formal knowledge and mutual learning (Gap Analysis Finding No. 3.3)

46. In the technical design phase of the MA, it became apparent that a dedicated process was necessary in order to respond to the need to bridge not only scales but also different epistemologies such as linking local knowledge and scientific information in assessments.

47. The MA addressed this need through a dedicated conference, held in Alexandria, Egypt 17-20 May 2004. The Conference successfully addressed the identification of approaches to integrate the MA conceptual framework and methodologies with other conceptual frameworks and methodologies reflecting a whole diversity of epistemologies. A similar approach could be followed for the purpose of incorporating different relevant types of knowledge into the IPBES knowledge base.

48. The following potential activities might be considered:

i. Organize dialogues between social and natural scientists to ensure that they are able to engage together efficiently for IPBES work programme areas

ii. Assess the feasibility to convene a Scientific Advisory Panel that consists of natural and social scientists including economists to ensure the incorporation of all relevant disciplines into IPBES

iii. Ensure the involvement of stakeholders and local communities in identifying key information on biodiversity and ecological services and in contributing knowledge to the assessment analysis

iv. Promote studies on and assess local knowledge for its integration into scientific literature

v. Organize expert meetings with scientists, indigenous and local community representatives to identify and promote relevant information under the International Indigenous Forum on Biodiversity (IIFB) and other relevant fora

vi. Organize international conferences and expert meetings on bridging scales and different epistemologies in multi-scale assessments

vii. Organize a specific session aimed at providing clear guidance on the inclusion of all forms of knowledge and knowledge holders in the context of a possible workshop on the knowledge generation function of the Platform

Responding to the need to fill remaining significant gaps in long-term observation and monitoring programmes, in particular as regards data and information on interactions between drivers of change, ecosystems and human well-being (Gap Analysis Finding No. 3.4)

49. An assessment of the current status and gaps might be a first step towards a comprehensive approach to fill gaps in this area. Long-term monitoring programmes are not commonly in place, especially at national scale. There is a particular need to identify the science needs with regard to the design and operational methodologies in order to establish frameworks for long-term observations and monitoring programmes, including the specific needs of developing countries.

50. With regard to specific ongoing activities, although under design, the GEO BON is far from being operational. While GEO BON provides an opportunity to meet this particular need in support of IPBES' work, it is essential that it be made operational as soon as possible in order to provide for a system aimed at filling remaining significant gaps in long-term observations on biodiversity and ecosystem services. The IPBES Plenary may encourage this development and consider whether partnerships are required with the global observing systems for climate, oceans and terrestrial systems (and with GEO BON once operational) with regard to the full development and implementation of their biodiversity components in support of IPBES' work.

51. With regard to the identification of data and information on interactions between drivers of change, ecosystems and human well-being, there is a need to develop a conceptual framework and a methodology guiding the work of IPBES that would inform both research as well as observational activities so that the data and information collected reflect the main drivers of change of ecosystems and human well-being (see also the Assessment Information Document).

52. The following potential activities might be considered:

i. Develop a partnership with the global observing systems for climate, oceans and terrestrial systems with regard to the full development and implementation of their biodiversity components in support of IPBES' work

ii. Inform, encourage and guide the full design and implementation of GEO BON and develop a partnership with it once operational

iii. Encourage the integration of the biodiversity and ecosystem services components of these observational systems

Responding to the need to improve access to the data, information and knowledge that are already available (Gap Analysis Finding No. 3.5)

53. Further reflection since the Gap Analysis with regard to gaps and needs in relation to knowledge generation includes at the international expert meeting on IPBES and capacity building co-hosted by the Governments of Brazil and Norway (Trondheim, 25-27 May 2011), which provided an opportunity to identify needs related to, as well as mechanisms to increase, capacity building in support of the work of the Platform.

54. Identified opportunities and conditions for the success of the knowledge generation function of IPBES include issues related to language; standardization of data sets and the availability and use of standard metrics, including indicators; quality assurance/quality control; and national policies in place dealing with information and knowledge (see also the Capacity Building Information Document).

55. Issues to address to facilitate open access to data and information include those relating to infrastructure, language, informatics and personnel. Open access to data and information represents an emerging trend in the way key scientific information needed by scientists, policymakers, and other stakeholders is accessed. However, limitations of open access to the primary scientific literature remains an obstacle, despite efforts related to open access databases related to biodiversity, for example the Global Biodiversity Information Facility (GBIF).3 Open access to scientific publications is also critical. The recent trend of more open access journals is mostly the result of moving the cost of publication from the user to the provider. Although this opens access to science and knowledge for researchers in developing countries, it also risks restricting options for publications emerging from the same researchers.

56. Possible efforts for capacity building in support of the knowledge generation function of IPBES could include a portal on open access and accelerating incentives to publish on open access (e.g. public-private partnerships); engaging actively with the scientific community; catalyzing multidisciplinary education; catalyzing coordination and networking; communicating knowledge

[3] www.gbif.org

effectively; and responsiveness to demands from different stakeholders (see also the Capacity Building Information Document).

57. Facilities providing open access to data and information act as tools not only to promote access to key scientific information but also to promote scientific and technical cooperation among relevant stakeholders. An example is provided by the Clearing-House Mechanism (CHM) of the CBD, which through effective information services and other appropriate means (e.g. training) promotes and facilitates scientific and technical cooperation, knowledge sharing and information exchange.4

58. The following potential activities might be considered:

i. Promote the use of different languages, standardization of data sets and the availability and use of standard metrics, including indicators so that metadata are comparable

ii. Develop a worldwide portal on open access and accelerate incentives to publish via open access and link the portal to a possible online forum for sharing information and networking of IPBES focal points (cf. capacity building information document), to be accompanied by quality assurance and user guidance

iii. Enter into strategic partnerships with relevant existing open access facilities to data and information

iv. Collaborate with the existing knowledge management platforms

v. Undertake an analysis of stakeholder needs in relation to access to data and information

vi. Explore modalities for identifying and cataloguing metadata available within relevant assessments

Determining the availability of scientific information - an IPBES scoping process.

59. A process will be required to identify the availability of scientific information with which IPBES assessments can respond to requests put to the IPBES plenary. Such a process could take the form of an IPBES Scoping Process. The IPBES Scoping Process could be mirrored on the IPCC Scoping Process.

60. Once requests from the various IPBES constituencies are received, the Scoping Process would, according to a procedure similar to that of the IPCC Scoping Process, assess whether there is sufficient information to respond to such requests, and initially prioritize and organize them for consideration by the Plenary. Once completed, the Scoping Process could produce an outline for the IPBES assessment report, for consideration by the IPBES Plenary.

61. In the event that the body of knowledge necessary to address given requests were not available, two scenarios could be possible. The first scenario would entail dealing with those requests in the context of a process dedicated to new topics identified by science. It might be possible that, once analyzed through a dedicated process, some of those new topics may be injected back into the Scoping Process for their consideration in the context of the outline for the IPBES assessment report. This function could be provided by the IPBES horizon scanning or a foresight process.

62. In the second scenario, the IPBES Scoping Process would confirm that the body of knowledge necessary to address given requests is not available and would defer those requests to the scientific community for the issues to be addressed through further research.

5. Relationships with other functions of IPBES, and other relevant initiatives

63. Information on gaps in knowledge is one key output from the assessment process, which provides a clear identification of the needs of policymakers that need to be filled through new research. There is therefore an important function of the IPBES assessments delivering on the knowledge generation function of IPBES in relation to the identification of scientific information needed by policy makers – ie in identifying gaps in scientific knowledge that can be the focus of efforts to catalyse new knowledge through scientific research.

[4] www.cbd.int/chm

64. In addition to the identification of gaps through assessment, the proposed Scoping Process for IPBES' assessments would also form an essential function in identifying knowledge gaps in relation to policy makers requests, in addition to helping to define the outline of IPBES assessment reports.

65. Capacity building will be an important requisite to respond to some of the identified needs in relation to knowledge generation. The information document on capacity building and the report of the Trondheim expert workshop elaborate further in this regard.

66. It was agreed in Busan that IPBES would collaborate with existing initiatives on biodiversity and ecosystem services, including MEAs, United Nations bodies and networks of scientists and knowledge holders, to fill gaps and build upon their work, while avoiding duplication. There are a range of ongoing assessment initiatives at various scales that it will be important to consider as the IPBES work programme is established.

67. Several organizations, programmes or initiatives support development of research strategies to meet policy needs and to understand how knowledge can be made usable. Examples are ICSU, the International Social Science Council (ISSC), TWAS, DIVERSITAS, IHDP, PECS, the regional biodiversity observation networks (EBONE in Europe, AP-BONE in Asia Pacific, AfriBON in Africa), and work aimed at assessing the impact of policy-oriented research by the CGIAR's Standing Panel on Impact Assessment (SPIA).

68. Other central actors include international organizations whose mission includes a contribution to science-policy interfaces on biodiversity and ecosystem services such as the International Union for Conservation of Nature (IUCN), with its six scientific commissions.

69. Whilst this multitude of processes and active organisations is important for the science-policy dialogue, improving the articulation and interaction of these existing processes remains important. Coordination for an improved science-policy interface requires evolving from fragmented efforts to communication, exchange, cooperation and, as appropriate, integration among the actions pursued by relevant stakeholders.

70. For more effective international stewardship of biodiversity and ecosystem services, it is important that IPBES establish bridges with the whole community of knowledge holders. Communication is particularly important to ensure coherent scientific advice across disciplines, scales, different policy areas and society. Ultimately, the types and modalities of interaction between IPBES and relevant partners will be part of the institutional, administrative, and procedural arrangements of the Platform.

6. Options for operationalizing the knowledge generation function of IPBES

71. A range of different but not mutually exclusive options exist to deliver the knowledge generation function of IPBES and to coordinate the implementation of the knowledge generation work programme. These include:

- Establishing a Scientific Advisory Panel to oversee the knowledge generation function;
- Establishing a Working Group on Knowledge Generation;
- Establishing expert groups dealing with specific aspects of knowledge generation;
- Developing a dedicated work programme on knowledge generation;
- Incorporating knowledge generation as one of the main tasks of the IPBES Secretariat.

72. If established, the rules of procedure for the Scientific Advisory Panel will include rules on the policy and process for admitting observer organizations, which is relevant to defining the scope of attendance at and participation in the work of the Panel by organizations active in the area of knowledge generation. If a Science Panel is not established, an Executive Committee or a Bureau would have to oversee progress made with regard to the knowledge generation function and the related work programme between two intersessional meetings of the Plenary.

73. In order to deliver an effective knowledge generation function of the Platform, the plenary may wish to consider the incorporation of knowledge generation into the work programme of the IPBES Secretariat, the development of a dedicated work programme on knowledge generation, and the attribution of an overall oversight function with regard to its implementation by a subsidiary body of the Plenary or an immediate oversight by a dedicated working group.

74. There is interest from a number of relevant organisations to organize a multidisciplinary and multi-stakeholder expert workshop on the knowledge generation function to further refine these ideas in advance of the 2nd session of the plenary meeting.