

## Introduction: the functioning of the IPBES science policy interface

Esther Turnhout

Full professor 'The politics of Environmental Knowledge'

Forest and Nature Conservation Policy Group

Wageningen University, esther.turnhout@wur.nl

Since its first inception, IPBES has been the topic of much controversy (Vadrot 2014). Essentially, these controversies revolve around two issues: 1) the necessity and added value of IPBES vis-a-vis existing institutions and assessments, specifically the GBO and the CBD STBSTA; and 2) The breadth and scope of IPBES, specifically the integration of scientific and other forms of knowledge and the focus on assessment versus a wider array of deliverables. These two are related: if IPBES is to have added value and not repeat what has been done before, it has no choice but to adopt a wide scope that integrates non scientific forms of knowledge and produces a diversity of knowledge based products that goes beyond assessments (Hulme et al. 2011) and connects with the needs of users. This broad and inclusive approach is also in keeping with the fact that no single accepted definition of biodiversity exists and that there is a wide variety in ways of knowing and living with biodiversity that should not be reduced to singular and standardized metrics (Turnhout et al. 2012, 2014). Put differently, the main innovation of IPBES lies in its social science work and its commitment to link knowledge and expertise to the actual conservation of biodiversity in practice.

Formal decision making in IPBES has followed this line of reasoning in the development and adoption of the work program. Also in practice, the MEP, the selected experts for various deliverables and the secretariat have worked hard to implement this approach. A crucial step has been the adoption of the IPBES conceptual framework (Diaz et al. 2015) and the decision that all IPBES deliverables will use and conform to this framework. The implication has been that all deliverables face the challenge of having to find a way to incorporate a diverse set of values and conceptualizations of nature (although it is not yet completely clear how the different current working groups have addressed this challenge).

However, this does not mean that there is full consensus about this issue. A response to Diaz et al.'s presentation of the conceptual framework makes the argument that IPBES should stick to global level assessments, should not claim that it will be able to incorporate indigenous knowledge and should not attempt to do so (Soberon and Townsend Peterson 2015).

Also among the plenary, there are signs of resistance and a lack of support. One clear example has been the discussion of the deliverable on the conceptualization of values during the previous plenary in January 2014 in Bonn. Several member states, with Chili as the one of the more vocal representatives, were very critical of how this deliverable turned out and desired a much more focused overview of methods and approaches for the monetary and economic valuation and accounting of nature and ecosystem services. The MEP responded in plenary by explaining that although the deliverable could be complemented with more detail about these methods, it was in

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

essence in accordance with the brief for the deliverable and with the conceptual framework. A view that was supported by other member states, including Bolivia.

A different, but possibly related, concern is the lack of actual resources, support and capacity for implementing the broad breadth and scope of IPBES, combined with the currently rather limited buy-in from relevant stakeholders and experts. It is clear that the task that IPBES has set itself is very challenging and to some extent, concerns uncharted territory. Ever since the adoption of the CBD and despite repeated urgent calls for inclusiveness in terms of values, knowledge and conceptions of biodiversity, biodiversity knowledge and governance have not been able to actually come up with a satisfactory approach for how this could be done. IPBES demonstrates a serious attempt to institutionalize such an approach on a global scale, but its functioning is severely restricted because the current level of support for the work of IPBES is insufficient. The secretariat is understaffed and there is insufficient financial compensation for the work that has to be done.

### Assessment and position

I see the situation described above as a dilemma for IPBES. Its added value, credibility and legitimacy lie in its broad and inclusive approach. But without more resources, IPBES may be unable to actually implement this in practice, which in the end will risk IPBES' legitimacy. When resources remain limited, IPBES may be tempted (in line with what Soberon and Townsend Peterson suggest) to take a pragmatic approach and prioritize mainstream scientific deliverables because this is easier, cheaper and there is a lot of experience within the expert community on how to do this. However, by de-facto adopting a narrow approach, they also risk losing their legitimacy because their added value compared with other biodiversity assessments will be sacrificed.

Resolving this dilemma is ultimately a matter of political decision-making. My view is that narrowing the scope of IPBES in favor of a more pragmatic approach is not an option. However, maintaining the current high ambitions without increasing support and resources may ultimately be a very effective strategy for making IPBES fail. A number of options are available to remedy this situation including:

- A better-resourced secretariat
- A better position of stakeholders (which includes the experts who do a lot of the work) in IPBES (see stakeholder engagement strategy) to increase buy-in and commitment
- Ensuring sustained In-kind contributions by government to support experts who have been selected to contribute to the IPBES work program and build national and regional networks.
- Making sure that IPBES prioritizes those elements of the work program where it is innovative and has added value. This may require a reconsideration of the allocation of resources in the IPBES work program, a focused effort to enhance the number of policy and humanities experts in the MEP and the effort of member states to enhance the engagement of relevant experts and stakeholders.

## References cited

Diaz, S., Demissea, S., Joly, C., Lonsdale, M. & Larigauderie, A., 2015. A rosetta stone for nature's benefits to people. *PLoS Biology*, 13 (1), e1002040.

Hulme, M., Mahony, M., Beck, S., Gorg, C., Hansjurgens, B., Hauck, J., Nesshover, C., Paulsch, A., Vandewalle, M., Wittmer, H., Boschen, S., Bridgewater, P., Diaw, M.C., Fabre, P., Figueroa, A., Heong, K.L., Korn, H., Leemans, R., Lovbrand, E., Hamid, M.N., Monfreda, C., Pielke, R., Settele, J., Winter, M., Vadrot, A.B.M., Van Den Hove, S. & Van Der Sluijs, J.P., 2011. Science-policy interface: Beyond assessments. *Science*, 333 (6043), 697-698.

Soberón, J. & Townsend Peterson, A., 2015. Biodiversity governance: A babel tower of scales and cultures. *PLOS Biology*, *PLoS Biology*, 13 (3), e1002108.

Turnhout, E., Bloomfield, B., Hulme, M., Vogel, J. & Wynne, B., 2012. Conservation policy: Listen to the voices of experience. *Nature*, 488, 454–455.

Turnhout, E., Neves, K. & De Lijster, E., 2014. 'Measurementality' in biodiversity governance: knowledge, transparency, and the Intergovernmental science–policy Platform on Biodiversity and Ecosystem Services (IPBES). *Environment and Planning A*, 46, 581-597.

Vadrot, A.B.M., 2014. *The politics of knowledge and global biodiversity*. Oxford: Routledge.

## 2C: Scoping document on a global assessment

By: *Berien Elbersen (PhD): Senior researcher spatial environmental assessments.*

Alterra, Wageningen, The Netherlands

### Introduction

This paper aims at providing a review of the initial scoping paper for a Global Assessment of Biodiversity and Ecosystem services (IPBES/3/9). This scoping document was developed by an IPBES expert group in October 2015 in Bonn. The scoping paper serves as the guidance for the structure and organisation of the implementation of the Global Assessment on biodiversity and ecosystems. It should focus on both terrestrial, freshwater, coastal and marine ecosystem structures and functioning particularly in relation to human interactions. The latter two ecosystems are included in this global assessment because of the decision to also cover open oceans.

The aim of this note is to provide a summary overview and a critical review of the IPBES scoping paper for global assessment of biodiversity and ecosystem services. It should provide guidance to the Dutch Ministry of Economic Affairs which is taking the EU presidency role in 2016 and thus will bring in the EU perspective in the IPBES process towards the development of the Global Assessment.

In the following first a summary overview is given of the scoping paper for Global Assessment of biodiversity and ecosystem services. This is followed by a state of play view on global biodiversity assessments and the position and function of the planned global assessment particularly in relation to gaps that need to be filled key challenges that need to be addressed in the planned global assessment. The last section provides recommendations on important issues which should be taken into account in the development of the global assessment particularly taking account of the EU vision on biodiversity and Ecosystems as addressed in the EU's Biodiversity strategy to 2020 (COM/2011/244).

### Background and scope

The 10 pages long scoping paper describes in the first part the scope, the geographic coverage, the rational, utility and methodological approach. The chapter outline of the proposed Global Assessment is extensively described in Section III. In Section IV a short comment is given on data and information access to be organised for the assessment. This is then followed by short Sections addressing the strategic partnerships and capacity building that needs to be organised for the process of assessment, the technical support, the communication and outreach, the process and timetable for the implementation of the global assessment which will start as from 2016 and will end in the second quarter of 2019 with the approving the summary for policy makers and the technical global assessment report. The final Section discusses the budget required for the whole process which is expected to cost 2.2 mln. US \$.

#### *Main scope and context*

The main scope of the global assessment is to undertake for the first time a comprehensive global intergovernmental and critical assessment that covers:

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

- 1) the state of knowledge on past, present and possible future multi-scale interactions between people and nature’.
- 2) the status, trends (past and future), drivers, values and response options regarding nature (including terrestrial, freshwater, coastal and marine biodiversity, ecosystem structure and functioning),
- 3) nature’s benefits to people (including ecosystem goods and services), and their interlinkages, particularly the contributions of biodiversity, ecosystems and their benefits to people, long-term well-being and sustainable development as expressed in the Sustainable Development Goals
- 4) thresholds, feedback, resilience, opportunities, synergies and trade-offs between different responses associated with meeting multiple goals, and the coupling between the social, economic and environmental dimensions of sustainable development.

Important emphasis is put on reaching with the global assessment a strengthening of the science-policy interface on biodiversity, ecosystem functioning and ecosystem goods and services at a range of spatial scales from the local to global levels by providing the knowledge needed for informed decision-making by Governments, the private sector and civil society.

The Global assessment is undertaken in the wider context of several strategic plans and visions:

- 1) The **Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets** were adopted by the Convention on Biological Diversity (CBD) in 2010. They incorporate global targets for reaching specific biodiversity and ecosystem conservation and services ambitions in both terrestrial and marine environments. The targets are global but the actions to achieve them are mostly implemented at the national, sub-national and local level. This is done through National Biodiversity Strategies and Action Plans (NBSAPs). At EU level the European biodiversity Action plan was developed in response.
- 2) **The 2050 Vision** project of the World Business Council for Sustainable Development (WBCSD). The Vision was developed by 29 WBCSD member companies on the way to sustainability by 2050, and a pathway leading to that world – covering guidelines for fundamental changes in governance structures, economic frameworks, business and human behaviour.
- 3) **The 2030 Agenda for Sustainable Development (UN, 2015)** in which **17 Sustainable Development Goals for 2030** have been specified. Particularly the Global Assessment should provide a clear assessment as to how biodiversity, ecosystem functioning and ecosystem services contribute to the implementation of the 17 goals.

### *Timeframe and chapter outline*

Given this context of several strategic plans and actions it is logical that the timeframe to be covered in the Global Assessment is both focused on the trends up to 2020 (going back as far as 50 years) and plausible future projections with a focus on various periods between 2020 and 2050. The temporal dimension is also clearly the red line for designing the contents of the Global Assessment report which is to consist of 6 chapters.

The **chapter 1** focusses on the global opportunities for sustainable development in human-nature interactions and the contributions of nature and nature’s benefits to people through the lens of the Strategic Plan for Biodiversity 2011–2020, its 2050 Vision and the Aichi Biodiversity Targets and the national biodiversity strategies and action plans. The perspective is still time neutral not taking a specific progress in time or scenario approach.

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

**Chapter 2** focusses on the on the status of, and trends in, human-nature interactions at the global level taking both a global and transregional focus and special attention to “good quality of life”, direct and indirect drivers, and “nature” and “nature’s benefits to people” . It should highlight emerging issues and success stories from the regions and commonalities and divergences across regional/subregional scales based on the input from the IPBES regional/subregional assessments. It should also cover thematic assessments, as well as new global scale evidence on status and trends with an explicit consideration of transregional linkages, status and trends of global institutional drivers and analysis of information and knowledge gaps and needs for capacity-building.

In **Chapter 3** the focus is on understanding the progress towards meeting the major international goals, such as the goals for 2020 in the Aichi Biodiversity Targets and 2030 Sustainable Development Goals set out in global agreements related to biodiversity and ecosystem services. The assessments are to be based on a synthesis of statuses and trends in regional/subregional assessments, prior global assessments, available global indicators and other new evidence. It will include an analysis of interactions and feedback between goals and components of the conceptual framework and an evaluation by sector, underlying reasons why Targets are likely to be achieved or not and finally an analysis of information and knowledge gaps, as well as needs for new critical research and capacity-building.

For 2030-2050 assessment of plausible futures several scenario assessments and approaches are foreseen to be presented in **chapters 4 and 5** of the Global Assessment.

In **Chapter 4** the emphasis will be on plausible futures of human-nature interactions considering a wide range of plausible future scenarios, focusing on the 2030 and 2050 time frames.

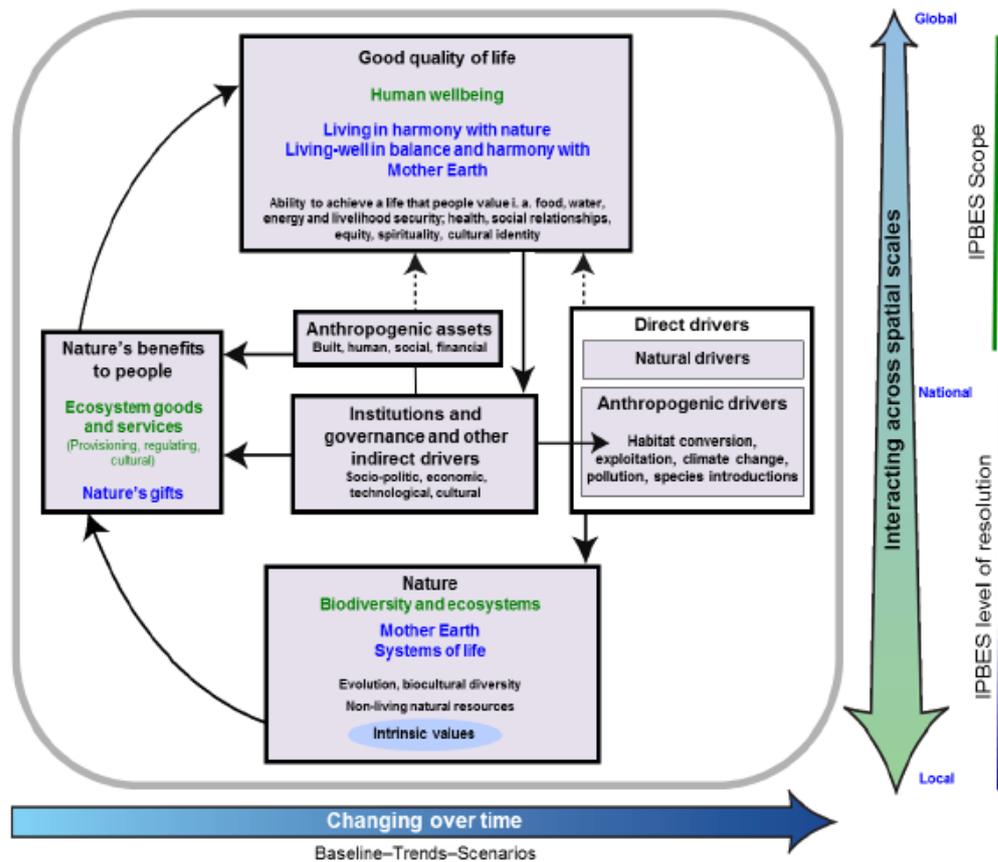
**Chapter 5** will develop scenarios and pathways towards a sustainable future, with a focus on policy interventions particularly focusing on the internationally agreed Sustainable Development Goals for 2030 and the Convention on Biological Diversity’s 2050 Vision as far as related to biodiversity and ecosystem services.

The last **Chapter 6** will identify opportunities for decision makers at all levels and will be based on an analysis of the roles in, and contexts of, decision-making contained in chapter 5, recognizing that there is a range of world views and value systems. The chapter will analyse specific issues and opportunities for action for its target audience that includes policymakers, legislators, financial planners at overarching levels, Global and regional governance structures such as the United Nations, National, subnational and local governments and different public sectors, Private sector and civil society.

### *Conceptual and methodological approach*

The overall structure and methodological organisation of the Global Assessment is provided by the conceptual framework (decision IPBES-2/4, annex). This conceptual framework was developed by a multidisciplinary Expert Panel while meeting in Cape Town in August 2013 already. The conceptual framework is summarised in a figure (see Figure 1) which represents a highly simplified model of the complex interactions between the natural world and human societies. The model identifies the main elements together with their interactions, that are most relevant to the assessments and knowledge generation in the Global Assessment to inform policy and develop the required capacity-building.

**Figure 1** Visual representation of the conceptual framework (decision IPBES-2/4: Annex Conceptual framework for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services



The framework includes six interlinked elements constituting a social-ecological system that operates at various scales in time and space:

- 1) "Nature" refers to the natural world with an emphasis on biodiversity
- 2) "Anthropogenic assets" refers to built-up infrastructure, health facilities, knowledge (including indigenous and local knowledge systems and technical or scientific knowledge, as well as formal and non-formal education), technology (both physical objects and procedures), and financial assets, among others
- 3) "Nature's benefits to people" refers to all the benefits that humanity obtains from nature. Ecosystem goods and services, considered separately or in bundles, are included in this category.
- 4) Anthropocentric values can be expressed in diverse ways as they can be material or non-material, can be experienced in a non-consumptive way, or consumed; and they can be expressed from spiritual inspiration to market value and they include existential values such as the preservation of nature for future generations – or the option values of biodiversity as a reservoir of yet-to-be discovered uses from known and still unknown species and biological processes, or as a constant source, through evolutionary processes, of novel biological solutions to the challenges of a changing environment.
- 5) Institutions and governance systems and other indirect drivers of change are the ways in which societies organize themselves, and the resulting influences on other components. They are the underlying causes of environmental change that are exogenous to the ecosystem in question.
- 6) Direct drivers of change refers both natural and anthropogenic factors that affect nature directly.

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

- 7) Good quality of life is the achievement of a fulfilled human life, a notion which varies strongly across different societies and groups within societies. It is a context-dependent state of individuals and human groups, comprising access to food, water, energy and livelihood security, and also health, good social relationships and equity, security, cultural identity, and freedom of choice and action. From virtually all standpoints, a good quality of life is multidimensional, having material as well as immaterial and spiritual components.

All these elements and their interrelationships should be covered in the Global Assessment.

In addition to the overall conceptual framework the Global Assessment will be based on existing data, published scientific and grey literature, and other information held by global, regional, subregional and national institutions, such as the relevant multilateral environmental agreements. The global assessment will draw on the Platform's regional/subregional, thematic and methodological assessments and guidelines, as well as other relevant global assessments (see next).

As for the forward looking assessments the scoping report for the Global assessment gives already very extensive guidelines on different methods to be applied. In Chapter 4 plausible future scenarios will be analysed based on four broad classes of methods: statistical extrapolations, exploratory scenarios (e.g., based on storylines), inferences from patterns in case studies, and analyses of non-linearities and thresholds. Storylines of socioeconomic development (e.g., Millennium Ecosystem Assessment scenarios). will be based on analysis and synthesis of existing regional and global scenarios and available new scenarios where necessary.

In Chapter 5 where scenarios and pathways and policy interventions that can lead to a sustainable future are assessed the different types of scenario approaches should cover goal-seeking scenarios, policy and management screening scenarios that explore the contributions and effects of specific interventions and inferences from patterns in case studies and analyses across scales and regions focusing on interventions that have led to positive synergies, while at the same time indicating the trade-offs that occur in all scenarios. Like in Chapter 4 the scenarios used in this chapter should also build as much on existing regional and global scenarios where possible.

### State of play on former global biodiversity assessments, their contribution to the new Global Assessment and the key challenges to be tackled to fill gaps in knowledge

It is clear that the Global Assessment should build as much as possible on global and regional assessments already performed, indicators and data collection approaches already available. Important assessment such as the **Millennium Ecosystem Assessment, reports of the Intergovernmental Panel on Climate Change (IPCC), the Global Biodiversity Outlook series and the World Ocean Assessment** are to be integrated in the overall analysis for the Global Assessment.

The challenge of the Global Assessment will be especially to develop a good cross analysis of the material generated in these different global assessments and then identifying what new insights are available through this particularly in relation to the functioning of ecosystems and the importance of these for the provision of different ecosystem services. Not in all studies the concept of ecosystem services particularly its spatial dimension is precise enough documented, because of the lack of spatially detailed and recent information for some parts of the world (while others are well mapped).

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

This is particularly the case for the Global Biodiversity Outlook series which often presents assessment taking the whole country as spatial reference or anecdotal examples. Such information is interesting in itself, but it will be challenging from this material to generate a whole global outlook. For the Millennium Assessment much more effort has been invested to provide spatially detailed and globally complete assessments

Another challenge to be addressed in the Global Assessment is to integrate the different studies focussing sometimes on sub-systems e.g. only oceans or climate change, and show the different interrelationships that exist between different studies and the way they work out for the different types of species, the ecosystems they depend on and the human interaction and the functioning of these ecosystem for the provision of services to humans.

At the same time it will be very challenging in the Global Assessment to go beyond the results of the former global assessments studies. Particularly the Millennium Ecosystem Assessment provides extensive and detailed information of ecosystem functions provided to humans and human threats to biodiversity and the functioning of habitats. Much effort will need to be made in the Global Assessment to go beyond this. Good forward looking assessments in chapter 4 and 5 will provide this added value provided they take different perspectives from the ones already presented in the Millennium Assessment.

Other relevant assessment studies on which to build which have not been mentioned in the Scoping report for the Global Assessment are the TEEB assessment and the LULUCF and REDD+.

Economics of Ecosystems and Biodiversity (TEEB) is a global initiative that focuses on “making nature’s values visible”.. It aims to achieve this goal by following a structured approach to valuation of ecosystem services in order to make decision-makers recognize the wide range of benefits provided by ecosystems and biodiversity particularly through demonstrating the values in economic terms. This value demonstration approach can be very valuable in making visible how nature can contribute to the wellbeing of people which is one of the important ambitions of the Global Assessment and should therefore take TEEB outcomes carefully into account.

Since land use is of critical importance to biodiversity it is very important that the Global Assessment takes account of the LULUCF monitoring data. **Land use, land-use change and forestry (LULUCF)** is coordinated by the United Nations Climate Change Secretariat and is focused on a greenhouse gas inventory covering emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities. As such changes in the carbon cycles of land uses and forestry have an enormous relevance for the functioning of ecosystems and how they impact on a very important regulating service and that is the one on climate regulation.

As to REDD+ it is also of large relevance to the Global Assessment because it covers the global assessment of a very important group of ecosystems namely the forests. REDD+ aims at climate regulation through reducing greenhouse gas emissions and increasing carbon sequestration by forests. It is therefore important that REDD+ monitoring outcomes are also incorporated in the Global Assessment to show how forest ecosystems have important positive contributions to human well-being, such as through water regulation, soil erosion prevention, carbon sequestration, and the provision of timber and non-timber forest products. On the other hand forest management with

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

these positive benefits could at the same time provide threats to other ecosystems such grasslands of high biodiversity values if these are converted to production forests.

The global assessment will also be well placed in time to contribute to other global assessment studies itself which are:

- 1) the fifth edition of the **Global Biodiversity Outlook** (Convention on Biological Diversity). It will report in 2020 on the implementation of the **Strategic Plan for Biodiversity 2011–2020** and assess the achievements of the Aichi Biodiversity Targets.
- 2) the elaboration of the **Strategic Plan for Biodiversity 2021–2030** which will be considered by the Conference of the Parties to the Convention on Biological Diversity at its fifteenth meeting in the fourth quarter of 2020.

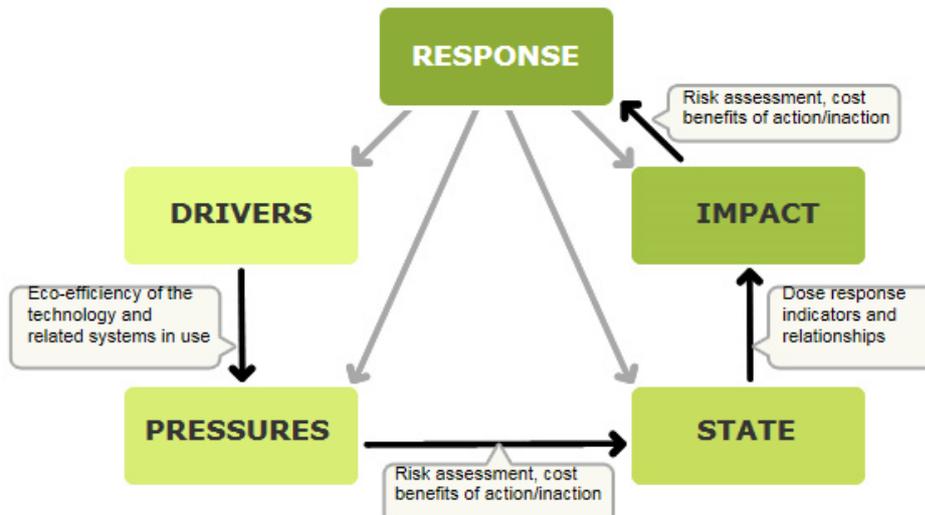
### Recommendations for implementation of the IPBES global biodiversity assessment of biodiversity and ecosystem services

The scoping paper for the Global Assessment is a solid document providing a good overview of the scope and ambitions and the planned structure, planning, utility and capacity building needs to be covered in the Global Assessment.

The methodological approach could still gain from a further elaboration. Firstly, to ensure that the Global Assessment provides interesting analysis that can be extrapolated and become relevant to similar situations in ecosystems all over the world. This can only be done by starting the assessment with a solid spatially explicit environmental typology within which different ecosystems and related functions can be classified. Such a spatial framework, that has already been elaborated in several studies for the whole European territory (Mucher et al, 2003, Metzger et al. 2005) and globally (e.g. the 8 Biogeographic Realms and 14 Biomes (Millenium Ecosystem Assessment, 2015)), is crucial to ensure that main types of ecosystems, their ecosystem services and the specific human nature-interactions occurring worldwide are well covered in the Global Assessment. Such a spatial environmental framework will also help to give more value to the assessments done as it provides a solid bases for determining the spatial representativity of a case in a world context and can help to generalise results to larger spatial units. This will make comparability and benchmarking more easy and ensures that examples of human-nature interactions and policy interventions do not remain anecdotal but can also provide guidelines for comparable situations in other regions.

Secondly the methodological approach could gain improvement through taking account of the EU approaches in monitoring of environmental issues and impacts from policy and feeding it back in the policy process. This could be done through incorporation of the DPSIR framework (EEA, 1999; EEA, 2005). The Driving Forces – Pressures – State – Impact – Responses (DPSIR) approach can encourage and support decision-making, by pointing to clear steps in the causal chain where the chain can be broken by policy action (se Figure 2). The DPSIR represents a systems analysis view- social and economic developments exert pressure on the environment and, as a consequence, the state of the environment changes. This leads to impacts on e.g. human health, ecosystems and materials that may elicit a societal response that feeds back on the driving forces, on the pressures or on the state or impacts directly, through adaptation or curative action (EEA, Integrated Assessment portal).

**Figure 2:** Graphic overview of the DPSIR approach (EEA, Integrated Assessment portal)



Finally, the methodologies of mapping and monitoring ecosystem services already developed in the EU within the MEAS action and the introduction of and experiences concepts like Natura 2000 and High Nature Value farmland areas should also be taken into account in the Global Assessment. It is very well possible that these concepts could also be introduced in other continents in the world to improve the conservation of important ecosystems and species under threat and their human interaction.

# IPBES Agenda - viewpoints submitted to Min. of EZ

---

## References:

Convention on Biological Diversity (2010). Strategic Plan for Biodiversity 2011–2020

EU Biodiversity strategy to 2020 (COM/2011/244)

IPBES (2015) Scoping Paper for a Global Assessment of Biodiversity and Ecosystem services (IPBES/3/9)

IPBES (2013). Decision IPBES-2/4: Conceptual framework for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

Metzger, M.; Bunce, R.G.H.; Jongman, R.H.G; Múcher, C.A. & Watkins, J.W. (2005). A climatic stratification of the environment in Europe. In: Global Ecology and Biogeography.

Mucher, C.A., Bunce, R.G.H., Jongman, R.H.G., Klijn, J.A., Koomen, A.J.M., Metzger, M.J. and Wascher, D.M. (2003). Identification and characterisation of Environments and Landscapes of Europe. Alterra report 832. Alterra, Wageningen, the Netherlands.

UN-REDD (2012). REDD+ and the 2020 Aichi Biodiversity Targets Promoting synergies in international forest conservation efforts. UN-REDD Policy Brief Issue #05.

UN (2015). Transforming our world. Agenda for Sustainable Development. A/RES/70/1.

Millennium Ecosystem Assessment (2015), Millenium Ecosystem Assessment, Several reports (Vol. 1: Current State and trends/Vol 2: Scenarios/Vol.3: Policy Responses). Available at: <http://www.millenniumassessment.org/en/Global.html>

## Websites:

Aichi biodiversity targets: <https://www.cbd.int/sp/targets/#GoalE>

EEA, Integrated Assessment portal.

[http://ia2dec.pbe.eea.europa.eu/knowledge\\_base/Frameworks/doc101182/#](http://ia2dec.pbe.eea.europa.eu/knowledge_base/Frameworks/doc101182/#) (last visited 8-2-2016)

UN Climate Change Newsroom: <http://newsroom.unfccc.int/> (last visited 8-2-2016)

## **3a: Note on the IPBES thematic assessment on pollinators, pollination and food production**

Prof. David Kleijn

Plant Ecology and Nature Conservation Group

Wageningen University

### **Background**

The thematic assessment on pollinators, pollination and food production contributes to the third objective of the IPBES work program 2014-2018 to 'Strengthen the science-policy interface on biodiversity and ecosystem services with regard to thematic and methodological issues'. The report assesses the current knowledge on pollinators, pollination and their links to food production. The assessment strives to critically review the broadest range of evidence and make its findings readily available to support policy and management responses to declines and deficits in pollination. An 831-page technical report coded IPBES/4/INF/1 has been produced which has to be accepted during the IPBES4 session. In addition a 23-page Summary for Policy makers (IPBES/4/3) has been produced which is scheduled for approval during that same session. Here, I present a short analyses of the two documents and highlight and discuss the points that I think are most critical or sensitive.

### **General assessment of the documents**

The thematic assessment on pollinators, pollination and food production presents a comprehensive and balanced overview of the state-of-the-art of the values of pollinators and pollination, the status and trends of pollinators, pollination and pollinator dependent crops and wild plants, the drivers of change and policy and management options. I know most of the authors contributing to both the summary and the technical report and am familiar with the work of many others. These are all unbiased scientists that base their statements and conclusions on facts and evidence. This is reflected in both documents in the statements on a number of issues that are currently hotly debated in both scientific journals and popular media, most notably the impacts of neonicotinoid pesticides. The evidence presented on such topics is balanced and reflects the current state-of-the-art without any discrimination in the outcome of studies.

The reports present evidence that across the globe pollinators are important aesthetically, culturally, educationally, recreationally, economically and agronomically. The dependence of global agriculture on pollinators is steadily increasing and at the same time pollinator-dependent crops are performing worse than non-pollinator dependent crops. Globally, the number of western honey bee hives is increasing despite high winter colony losses in Europe and North America. Wild bees and butterflies are declining in North-western Europe and North-America. Population trends of pollinators in other parts of the world are unknown although local declines have been observed. Pollinator population decline is driven by a combination of different factors. These include habitat destruction and agricultural intensification, climate change, pests and diseases (originating from managed pollinators), pesticides and herbicides and invasive species. Many of these drivers are directly or indirectly linked to agricultural change, which in turn is strongly influenced by globalisation of the economy, increasing levels of consumption and global population growth. Decline of pollinators can

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

result in reduced or more variable crop yields. There is a wide range of possibilities to counteract the decline of pollinators some of which have already been proven effective in boosting pollinator numbers and crop yield. The implementation of these actions is hampered by governance deficits, contradicting policy goals across sectors and/or contests over land use.

### **The most critical or sensitive points**

(I) The contribution of (neonicotinoid) pesticides to the decline of both wild and managed pollinators is the most controversial issue with respect to pollinators, pollination and food production. The discussions focus on (i) the magnitude and duration of direct sublethal effects on pollinator populations from exposure to pesticides at levels found in the field under typical use conditions and (ii) whether honey bees are a suitable surrogate for other pollinator species in risk assessment, e.g. due to differences in physiology, ecology and behaviour (p. 95 of the technical report). Honeybees are by far the most commonly used test species in obligatory risk assessment trials that screen for toxicity on non-target species. Critics of the use of (neonicotinoid) pesticides state that honeybees, partly because they live in large colonies, are more tolerant to pesticides than most wild bee species who live solitary or in small colonies. They are of the opinion that the results of these trials cannot be extrapolated to other bee species. They are supported in their ideas by results of (semi-)field experiments carried out by independent scientists that show sub-lethal effects of pesticides that may negatively affect reproductive success of bees. Proponents of the use of (neonicotinoid) pesticides claim that most (semi-)field trials use bees that have been experimentally exposed to pesticide levels that are above-average field-realistic exposures and therefore over-estimate the adverse effects of pesticides on bees. The technical report explains this complicated matter in much detail in chapter 2.3 and highlights the most important information gaps. The debate is, in part, the result of the clash of the financial interests of one group of stakeholders with the ideology of another group of stakeholders. Independent scientists generally agree that the effects of pesticides on non-target pollinators are reason for serious concern but have not caused, by themselves, the observed declines in pollinators. Prioritizing and addressing the most urgent knowledge gaps with respect to the effects of pesticides will not stop the debate in the short term but will help find more sustainable solutions in the longer term. In my view, a serious risk with this debate is that possible prolonged discussions about pesticides will divert attention away from other critical factors driving pollinator loss and decline of pollination services both during and after IPBES4.

(II) Commercial management, mass breeding, transport and trade in pollinators outside their original ranges (but also inside) have resulted in new invasions, transmission of pathogens and parasites and regional extinctions of pollinators. The irony here is that modern farming practices have contributed to the decline of wild pollinators resulting in pollination deficits in crops. Rather than taking measures to restore wild pollinator communities, managed and sometimes non-native pollinators are being introduced whose pests and pathogens further exacerbate the plight of many wild pollinator species. As an example, the rapidly growing commercial bumblebee industry (partly Dutch) is looking for possibilities to expand their activities into new countries and continents. In many crops, managed bumblebees represent a proven cost-effective way to enhance yields or reduce labour costs and farmers around the globe would like to have access to managed bumblebees. In many countries there are native species of wild bees that could be developed into managed pollinators instead of the non-native species that are available now. However, the development of mass-rearing programs for these species is costly and the preferred option by industry is to be allowed to sell the currently available managed bumblebee species also where they are non-native. Producers of

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

managed bumblebees generally state that their bees are pest and disease free and are currently shipping their colonies under licenses that are limited to disease-free colonies. However, independent research shows that colonies obtained directly from the producer contained multiple, infectious parasites (Graystock et al. 2013). It is therefore perhaps not surprising that for bumblebees the evidence is accumulating that native bumblebees have declined, some to the brink of extinction, following the introduction of non-native bumblebees for crop pollination. More strict regulation of movement of all species of managed pollinators around the world and within countries is therefore pivotal, as is stated in the technical report and summary. This can limit the spread of parasites and pathogens to managed and wild pollinators alike and also reduce the likelihood that pollinators will be introduced outside their native range and cause negative impacts. The potential conflict lies in the fact that farmers and bumblebee producers will not be in favour of tighter regulation despite its benefits to wild pollinators species.

(III) The two previous controversies are illustrative of the main overarching issue underlying the problems with pollinators and pollination. Modern agricultural practices have spectacularly increased agricultural productivity, mainly by relying more and more on external inputs such as artificial fertilizer, pesticides and energy (mechanization). This process is resulting in a significant loss in the diversity of habitats and plants in agricultural landscapes. This in turn has caused the decline of wild pollinators and put significant pressures on honey bees. Pollination is one of the few processes in agriculture that cannot easily be replaced by external inputs (hence the introduction of pollinators in glasshouses). The first evidence is appearing that in insect-pollinated crops further intensification of agriculture no longer results in higher yields because of pollination limitation (Desguines et al. 2014). Breaking this stalemate would require the modernization of farming practices to be based not only on technological solutions but also increasingly on ecological solutions. This approach is being advocated in the report as the most promising option to mitigate pollinator decline (e.g. technical report, paragraph 6.9, p. 743; Summary report, Key Message 14): ‘ecological intensification, strengthening existing diversified farming systems to foster pollinators and pollination through practices validated by science or indigenous and local knowledge and investing in ecological infrastructure by protecting or restoring connected patches of semi-natural habitats throughout productive agricultural landscapes’. Such an approach basically proposes an integration of management to enhance delivery of ecosystem services into the conventional farming practices. The approach is context-dependent. In developing countries with many low-input small-holder farmers it may advocate increasing use of external inputs, as long as it does not impair flow of ecosystem services. In developed high-input agricultural systems such as those in North-western Europe it should primarily advocate management to enhance ecosystem service delivery (e.g. Pywell et al. 2015). The context-dependence could complicate discussions during IPBES4 since parties from different parts of the world may have different ideas about what ecological intensification entails. A better integration into agriculture of the management of ecosystem services, such as pollination, requires political vision and leadership. There is a growing number of grassroots initiatives to rely more on nature and less on agro-chemicals, particularly around pollinators and pollination. Furthermore, in my personal experience, farmers are increasingly open to try out the concept of ecological intensification as long as they have some confidence that it can be implemented cost-effectively. Nevertheless, important agricultural stakeholder groups generally favour business-as-usual scenario’s as illustrated by the blockage of recent attempts by the European Commission to green the Common Agricultural Policy (Pe’er et al. 2014). In order to achieve significant change in the

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

agricultural sector, grassroots initiatives should be backed up by clear policies promoting the integration of (wild) pollinator management into farm businesses. In my view this is the only way to sustainably maintain pollinators and pollination services in agricultural landscapes in the long run.

(IV) As stated at the beginning of this note pollinators are important aesthetically, culturally, educationally, recreationally, economically and agronomically. I see it as a risk that the discussions during IPBES4 and recommendations and policy implementations that possibly follow the approval and acceptance of the documents will focus on the economic and agronomic aspects of pollinators leaving the other aspects that are more difficult to quantify neglected. Only a very small proportion of all pollinators is agronomically and economically important (Kleijn et al. 2015). Too much focus on crop pollination might therefore lead to actions from which the majority of the pollinator species will not benefit. Vertebrate pollinators such as birds and bats are a good example. Compared to insect pollinators, a disproportionately large percentage of this group is threatened in their existence (technical report, p. 301). Nevertheless they are currently receiving very little attention in science and policy most likely because the scientific literature is being dominated by papers from developed countries where vertebrate crop pollinators are non-existent.

### References

Deguines, N., Jono, C., Baude, M., Henry, M., Julliard, R. & Fontaine, C. 2014. Large-scale trade-off between agricultural intensification and crop pollination services. *Frontiers in Ecology and Environment* 12: 212–217.

Graystock, P., Yates, K., Evison, S.E.F., Darvill, B., Goulson, D. & Hughes, W.O.H. 2013. The Trojan hives: pollinator pathogens, imported and distributed in bumblebee colonies. *Journal of Applied Ecology* 50: 1207-1215.

Kleijn, D., Winfree, R., Bartomeus, I., Carvalheiro, L.G., Henry, M., Isaacs, R., Klein, A.M., Kremen, C., M'Gonigle, L.K., Rader, R., Ricketts, T., Williams, N.M., Adamson, N.L., Ascher, J.S., Báldi, A., Batáry, P., Benjamin, F., Biesmeijer, J.C., Blitzer, E.J., Bommarco, R., Brand, M.R., Bretagnolle, V., Button, L., Cariveau, D. P., Chifflet, R., Colville, J.F., Danforth, B.N., Elle, E., Garratt, M.P., Herzog, F., Holzschuh, A., Howlett, B.G., Jauker, F., Jha, S., Knop, E., Krewenka, K.M., Le Féon, V., Mandelik, Y., May, E.A., Park, M.G., Pisanty, G., Reemer, M., Riedinger, V., Rollin, O., Rundlöf, M., Sardiñas, H.S., Scheper, J., Sciligo, A.R., Smith, H.G., Steffan-Dewenter, I., Thorp, R., Tscharntke, T., Verhulst, J., Viana, B.F., Vaissière, B.E., Veldtman, R., Westphal, C. & Potts, S.G. (2015). Delivery of crop pollination services is an insufficient argument for wild pollinator conservation. *Nature Communications* 6: 7414.

Pe'er, G., Dicks, L.V., Visconti, P., Arlettaz, R., Báldi, A., Benton, T.G., Collins, S., Dieterich, M., Gregory, R.D., Hartig, F., Henle, K., Hobson, P.R., Kleijn, D., Neumann, R.K., Robijns, T., Schmidt, J., Schwartz, A., Sutherland, W.J., Turbe, A., Wulf, F. & Scott, A.V. 2014. EU agricultural reform fails on biodiversity. *Science* 344: 1090-1092.

Pywell, R.F., Heard, M.S., Woodcock, B.A., Hinsley, S., Ridding, L., Nowakowski, M., Bullock, J.M. 2015. Wildlife-friendly farming increases crop yield: evidence for ecological intensification. *Proceedings of the Royal Society B*. 282: 20151740.

## 3(bii) Summary of the “Scoping for a thematic assessment” focusing on alien species and their control (deliverable 3(b)(ii))

### Introduction

This text offers a summary of the following documents:

1. Overview of the structure of the scoping report for a thematic assessment of invasive alien species. (From: IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) fourth session in Kuala Lumpur, 22–28 February 2016. Item 5 (g) of the provisional agenda).
2. Identification of sensitivities/opinions expressed in the “Proceedings of the E-conference for the scoping of the thematic assessment of invasive alien species and their control (IAS) (<http://www.ipbes.net/index.php/2015-08-10-11-13-20/invasive-species#> )

### Chapters of the scoping document:

1. Introduction
2. About the scope, the rationale, the utility and the assumptions
3. Chapter of IAS assessment report
4. Indicators, metrics and datasets
5. Relevant stakeholders and initiatives
6. Capacity-building
7. Progress and time table

#### Ad 1: Introduction

At its third session, the IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) approved the initiation of a scoping for a thematic assessment of invasive alien species (IAS), to be considered by the plenary, at its fourth session. This text summarizes the scoping document.

#### Ad 2. About the scope, the rationale, the utility and the assumptions

##### General:

- Definition of IAS by CBD: “*species whose introduction and/or spread outside their natural past or present distribution threatens biological diversity*”. (<https://www.cbd.int/invasive/WhatAreIAS.shtml>). Or also: “An alien species whose introduction and/or spread threaten biological diversity” (text of CBD website cited dd 23-12-2015)
- The assessment will largely focus on species thus defined, and adds to this that IAS with demonstrable negative effects on biodiversity and (through reduced ecosystem services) on human well-being deserve most attention.
- It must be recognized that many IAS are problematic and useful at the same time, or may be intractable for long periods (as a reservoir) in advance of causing problems.
- The assessment will focus on terrestrial, freshwater and marine ecosystems, in the four regions of the Platform’s regional assessment (\$\$).

##### Objectives of the thematic assessment of IAS:

1. Assess the array of IAS that affect biodiversity and ecosystem services
2. Assess the extent of threats of IAS (notably for biodiversity, food, human health, livelihood)
3. Assess the (human involvement) in major pathways for introduction and spread
4. Assess the global and regional trends in impacts, and management
5. Assess the level of awareness about IAS

# IPBES Agenda - viewpoints submitted to Min. of EZ

---

6. Assess the effectiveness of policy options and measures for control, eradication and prevention of IAS.

The legislative rationale is given by the Aichi Biodiversity Target 9: : “By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment”, as contained in the Strategic Plan for Biodiversity 2011–2020 (<http://www.cbd.int/sp/targets>). The rationale contributes e.g. to Sustainable Development Goal 15, target 15.8, of the 2030 Agenda for Sustainable Development, and to Aichi Biodiversity Targets 5, 11, 12 and 17.

The subject rationale is given by observations that IAS cause problems with respect to loss of biodiversity (CBD definition) and (more specific for the scoping document) the loss of ecosystem services, and of economy.

Utility of the assessment. The assessment is policy oriented, in that it will address questions of relevance to policymakers. In relation to policy, the assessment will focus e.g. on: 1. progress relative to Aichi targets, 2. Useful global policy initiatives (including networking), 3. What are obstacles to IAS management?, 4. How can IAS be prioritized?, 5. How can perverse policy drivers be prevented, 6. Installation of databases for sharing policy information, 7. Reporting on impacts, risks and benefits of IAS, 8. Who would benefit from improved management of IAS?

Assumptions of the assessment: The expert group involved will consist of 2 co-chairs, 52 authors, 12 review editors, and technical support equivalent to a full-time professional staff member. Moreover, 40 experts will be involved in a regional, virtual assessment. The assessment will draw upon existing lists of references and grey literature. Synergies will be built with indigenous and local knowledge systems (communities of farmers, fishers, local government, etc.)

- The scope, rationale & utility of an IAS assessment has been discussed during the IPBES “E-conference for scoping of the thematic assessment of invasive alien species and their control”. Suggestions resulting from these activities will be summarised below (chapter 2).

## **Ad 3: Proposal for chapters of the thematic assessment report on IAS:**

Chapter 1: Outline of the concept of IAS

Chapter 2: Review of the types of IAS (impacts mentioned here, but belong to chapter 4?)

Chapter 3: Global assessment of (in-)direct drivers

Chapter 4: Global assessment of environmental, economic and social impacts/costs

Chapter 5: Review the effectiveness of past and current management programmes/tools for IAS at different scales in their capacity to:

- prevent their spread
- apply the precautionary principle and risk assessment
- apply quarantine measures
- manage complex and intersectoral conflict (when species are useful *and* harmful)
- apply social media for detection and management of IAS
- once established: eradicate or manage IAS otherwise
- manage capacities of countries to deal with IAS
- manage IAS in protected areas

Chapter 6: Future options for management of IAS

- The content of the above chapters has been detailed in the “3(b)(II) E-conference Chapter Outline”.
- The detailed content has been discussed during the IPBES “E-conference for scoping of the thematic assessment of invasive alien species and their control”. Suggestions resulting from these activities will be summarised below (chapter 2).

# IPBES Agenda - viewpoints submitted to Min. of EZ

---

## **Ad 4: Indicators, metrics and datasets.**

The assessment will pay attention to 1. indicators and 2. data. The use and effectiveness of existing indicators (such as those developed by the Biodiversity Indicators Partnership) will be reviewed. The availability of data will be surveyed (at relevant levels, and with the ability to disaggregate results to e.g. environment, taxa, etc.)

## **Ad 5: Relevant stakeholders and initiatives**

Important stakeholders will be policymakers who deal with biodiversity and borders. For such stakeholders, there needs to be a strong focus in the assessment on the benefits (for countries and individuals) of managing invasive alien species. As IAS are often transported during human-driven processes, such as trade, important stakeholders will also include international trade organizations, border officials and agencies involved in the *intentional* movement of species such as those in the forestry and agriculture sectors

Important sources for the information needed for the assessment and solutions sought, will come from stakeholders such as: IUCN (Invasive Species Initiative), BirdLife International's (IAS programme), CAB International, Global IAS Information Partnership, Food and Agriculture Organization of the United Nations, the secretariat of the Convention on Wetlands of International Importance (Especially as Waterfowl Habitat, Ramsar Convention), UNESCO, WHO, IPPC, other relevant international and regional expert bodies.

## **Ad 6: Capacity-building**

It was found that there is a need for the development and strengthening of human capital, and institutional infrastructure, to deal with IAS. There are large differences between countries in their capacities to manage IAS. Involvement of agencies inside countries is necessary for successfully managing IAS. Challenges arise when IAS are also economically important (e.g. IAS in aquaculture). Gaps in the management of IAS must be identified.

## **Ad 7: Process and time table**

2016 first quarter: 1. The Plenary, at its fourth session, approves the conduct of the thematic assessment of invasive alien species and their control coupled with the regional assessments of biodiversity and ecosystem services. 2. The Chair, requests nominations of experts to prepare the assessment report.

2016 second quarter: The Panel selects the assessment co-chairs, coordinating lead authors, lead authors and review editors, using the approved selection criteria set out in decision IPBES 2/3 (IPBES/2/17, annex)

2016 early third quarter: First author meeting with 59 participants: co-chairs, coordinating lead authors and lead authors, 8 liaison experts involved in regional assessments (two experts for each of the four regional assessments), Panel/ Bureau members.

2016 Fourth quarter: Zero order drafts of chapters prepared and sent to secretariat (technical support unit)

## Identification of 'sensitivities' - Based on the "Proceedings of the E-conference for the scoping of the thematic assessment of invasive alien species and their control"

Comments/sensitivities irt the scope, rationale & utility of an IAS assessment (sept 7-25 2015)

- It is important to define IAS in a stringent way (an ontology question), because different definitions lead to different scopes (and costs, and complexity) of an assessment.
- IAS problems may decrease/increase due to climate change and anthropogenic disturbance of habitat.
- Too much focus on the most 'damaging' cases of IAS distorts the general picture.
- More attention for pro-active management could reduce the incidence of IAS crises.
- The role of human activity in the spread of IAS should be central in our planning.
- How is the balance between profits from IAS and damage/costs caused by IAS.
- Countries may differ in their capacities to manage problems with IAS.
- Marine IAS are not always well studied, and it is virtually impossible to eradicate or manage them once they have established.
- How to deal with IAS in current ecosystems that already contain a majority of non-native species (e.g. the river Rhine in the Netherlands).
- The focus of the assessment must not be on novel ecosystems but on "protecting biodiversity into the future from invasive species" (remark by IUCN, who also speaks about the resilience of "rich and healthy uninvaded biodiverse ecosystems")
- Need to incorporate as IAS the spill-over of parasites/diseases from IAS/livestock.
- Must effects of IAS on rare species be given more importance?

Comments/sensitivities irt chapters of the thematic assessment as suggested in the scoping report.

Chapter 1: Introducing the concept of IAS

- Fisheries and aquaculture are relevant drivers of IAS
- How to assess environmental impacts of IAS. Is an ecosystem services approach useful?
- Effects on islands are severe because of the many endemic species on islands. Such effect may not be analogous to mainland IAS impacts.
- Should there be more attention for control measures?

Chapter 2: Reviewing types of IAS

- Definition of IAS must be in place in order to know which species are IAS.
- How about the possibility of native species becoming invasive through climate change?
- How to deal with 'high risk' species which have been established but are not (yet) invasive.
- Does the assessment include invasive wildlife pathogens?
- Use appropriate statistics and experimental design when deciding a species is 'not an IAS'
- Relatively little is known about IAS in the marine environment, which may lead to under-representation during the reviewing
- How to define IAS if in 2100 the earth has become one large, global biodiversity melting pot? (Richard Corlett E-conference blz 46)

Chapter 3: Direct and indirect drivers.

- A generalised listing of drivers could be: 1. Habitat destruction/degradation (direct), 2. Climate change (direct and indirect), 3. Eutrophication (direct), 4. Transport and trade (direct and indirect), 5. Economic growth (indirect), 6. Deliberate introductions (pets, horticulture/ornamentals, forestry, agriculture, fish farms, etc.)(direct)
- The arctic may be relatively sensitive and increasingly exposed to IAS.
- Can models predict future IAS?

# IPBES Agenda - viewpoints submitted to Min. of EZ

---

- IPCC says: there is insufficient data for meaningful statements about interaction between climate change and IAS (in casu for Asia).

Chapter 4: costs of IAS.

- It is indicated that lists of references exist on this topic (e.g. Norway, India).

Chapter 5: Institutional arrangements.

- What limitations can inhibit the employing of policy/governance tools and which can be social/legislative barriers?
- Can we speed up the process by which IAS eventually decrease in vigour?
- Can hunting/eating IAS assist in their management?

Chapter 6: networking.

- A global inventory of capabilities would rapidly become out of date, instead use national contact points
- Use SITES experiences as a model
- Role of databases/information systems as basis for policy decisions
- Identification of hot spots and hubs with important role in IAS transport.
- Harmonisation of national law with international law may help.

## Proposition for a Dutch position

The following viewpoints offer a choice of positions derived from the above summary which could offer the Dutch Government inspiration for a Dutch position.

First it was observed that people that are inspired by nature conservation viewpoints will generally advocate different opinions than people that are inspired by economic viewpoints.

For example the IUCN strongly emphasizes the conservation of nature:

"As I understand it, the assessment is about Biodiversity and its Services and it must be based on a critical analysis of existing literature, with this novel terminology being one which has seriously distracted many from the critical issue we have in trying to protect Biodiversity from the impacts of invasive species." (Judith Filser page 75 of the E-conference) (For a proper understanding Filser's text it is relevant that the 'novel terminology' refers to the concept of 'novel ecosystems'. As the writer of this summary I like to emphasize that the capitals in this citation are present also in the original text). A remark which also clearly suggests the importance of conservation is e.g.: "Making the EU legislation on invasive species a conservation success." (Tollington et al. 2015).

On the other hand, there are voices which suggest that it may be possible to also hold a more 'dynamic' viewpoint, like: "It is clear that species introductions are cumulative, eradications rare, and prospects for reducing the rate of transport of IAS around the world are poor, except in some specific cases" (Richard Corlett blz 46). For such reasons it may be hard to describe what is an IAS if in 2100 the earth has become one large, global biodiversity melting pot. Here, one could use the river Rhine as an example, because already this day, about 70% of the species in the Rhine must be viewed as IAS. The river Rhine simply is not the same ecosystem as it was 50 years ago, and it can be doubted whether the state of 50 years ago can ever be restored, or even why this should be attempted. A relevant question in this context is whether the new state is by definition worse than the preceding state?

The above viewpoints show that there are at least two major 'schools'.

1. Those who desire to protect existing biodiversity in an unchanged state. In the extreme, this viewpoint leads to conservationism.

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

2. Those who desire to offer 7 billion people on earth a dynamic economy and some freedom to act, while not reducing 'ecosystem services'. This viewpoint allows a certain level of freedom for (inter)national trade, (inter)national traffic and (inter)national transport of economically relevant species (fish farms, forestry) or species that are kept for the pleasure of people (ornamental plants, tropical fish, etc.).

- The Netherlands are a nation of trade. As such the Dutch government may like to show that it is aware of the potential dangers of the more aggressive IAS, and that it has put in place protective measures, notably at the spots where IAS enter the Netherlands, e.g. the large harbours of Amsterdam and Rotterdam. To be effective, the Dutch work together internationally, and in relation to international law. In less economically developed countries, special attention/support may be needed for the development of IAS-management at e.g. ports or transcontinental highways.
- The Dutch government may want to analyse how the possibilities for managing IAS will change when the EU will increasingly become an area with one outer border, of which the Dutch coastal area is part.
- The Dutch government may like to study what will happen to IAS-management when container traffic will increasingly become automated. Soon robotized container terminals will place containers on robotic vehicles for transport on land.
- It may be interesting to explore whether the transport of plants/animals/etc. by humans will contribute to the persistence of populations of these species, when migration may offer a solution to effects of climate change.
- How much is known about long term effects (50-100 year) of 'aggressive' IAS versus less aggressive ones?
- As effects of IAS on islands are often relatively severe, it may be desirable to explore special legislation for islands.
- To what extent can IAS be accepted as a natural part of the Anthropocene's new dynamic state of the global ecosystem?

Coordinated EU position

PM

## 3b(iii) sustainable use of biodiversity

Theo van der Sluis

Team Biodiversity and Governance, ALTERRA, Theo.vanderSluis@wur.nl

### Introduction

This note is based on available information, i.e. the scoping document for sustainable use (7 pages), and the proceedings of the E-conference for the scoping document (115 p.). In addition, views are presented based on experience with projects and the literature on sustainable use.

### Background

The 'sustainable use of biodiversity' (SUB) is of particular relevance for hunting and use of plant and animal products, which are very much related with the CITES agreements and CBD. CITES is generally regarded as reasonably effective convention, with many countries as signatory, and in principle restricting illegal trade in goods, plants and animals.

Sensitive issue is the use of wildlife, in particular in developing countries, and the developing hunting sector, whether in wildlife management areas or on farms. There is an ongoing debate on sustainable use of wildlife for its ensuing benefits for local communities (food, income, employment), and the risks for increased poaching, e.g. for ivory or traditional medicines. Legal hunting in some cases may be used as a cover-up for poaching, people can abuse hunting permits, or sometimes subsistence hunting – based on hunting rights meant for traditional peoples – results in the sale of meat, which is illegal (Roe et al. 2000). It is also argued that benefits do not accrue to communities but rather to the commercial companies involved. The conflicts have sharply increased due to the commercial interests, and in some cases there are outright criminal syndicates that exploit the local people and their permits. As a result, the control of poaching has become more complicated and abuse of existing rules and fraud often results into abolishment of traditional hunting systems, and sometimes exclusion of indigenous people from protected areas or reserves. Examples are e.g. the hunting by the San (or bushmen) (Van der Sluis 1992) and exclusion of people from protected areas which were initially identified for them (Hitchcock et al. 2011). Another example is the debate on hunting for cultural reasons, which leads to controversy about hunting seals by indigenous peoples in Canada, contrary to conservation policies, and extends to the 'industrial' hunting of e.g. whales by countries like Japan, Norway or Iceland.

Another sensitive issue is the timber extraction, which relates to forestry policies, REDD+, and FLEGT agreements (FLEGT: EU Forest Law Enforcement Governance and Trade). CITES provides in a permit system which should ensure that timber can be legally traded – provided it is not included as protected species on one of the annexes. However, also here abuse of the system, sometimes corruption and involvement of criminal syndicates lead -in particular in countries with weak governance structures- to uncontrolled forest destruction (Arts et al. 2013; Slingenberg et al. 2009). Small farmers may have the right to cut trees, however, due to corruption and fraud by criminal organizations, the timber might be exported and end in European markets. Due to the high commercial interests the system is abused, which sometimes leads to criticism that CITES cannot conserve valuable timber species.

Sustainable use, therefore, seeks to identify structures and management systems which ensure the sustainable use of resources. The above cited cases illustrate that this has to do with power relations,

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

governance structures, traditional rights, but also criminal syndicates that can operate in countries with weak governance systems and /or with poverty. Also, sustainable use is across different scale levels, it includes the very local level where systems may not function, as well as national and sometimes global level, which complicates the assessments (Soberón and Peterson 2015).

### General assessment of the documents

The scoping note foresees that the report will ‘assess existing knowledge, taking into account examples and best practices at regional and global levels’. However, the scope is restricted to the provisioning services for a number of categories

- (a) Provisioning of food and medicines, including hygiene;
- (b) Provisioning of raw material, including precious woods, and energy supply;
- (c) Provisioning for ornamental purposes, including trophy hunting, trade of skin and fiber and trade of living pets.

The rationale for the scoping document mentions the importance of sustainable use for socio-economic development. Many stakeholders in the IPBES process are of the opinion that access to food and resources for some cultures is a basic right for people that depend on it, the premise being that people should be able to secure their livelihoods in the traditional way. It links also to the indigenous knowledge for management of resources, and the role of stakeholders. The “Revised draft stakeholder engagement strategy” explicitly mentions as stakeholders: “. . . community members, indigenous people, members of non-governmental organizations and community-based organizations, business people, farmers, local governments, intergovernmental organizations and a multitude of other organizations and individuals involved in implementation of biodiversity and ecosystem services work on the ground.” As Soberón and Peterson (2015) argue, such an assessment requires working across different scale levels, from local to global scale, and this is also one of the added values of IPBES.

What should be the focus for selection of species and taxa that are harvested or under threat? The general point of view is that groups, taxa or species are selected that can function as umbrella or flagship species. Such species stand for a larger group of species, and can also link species to the (functioning of) ecosystems. These have also clear links to functional biodiversity, and the provision of ecosystem services. Specific species-rich groups are tropical timber products, medicinal plants, oceans, bushmeat, fisheries in tropical waters.

The selected ‘themes’ or taxa (foods, raw materials, ornamentals) seem fairly wide, and include the most critical resources that are used, and to some extent over-exploited. The themes clearly link to the main categories which resort under the CITES agreement. In that respect this is a good choice, and meets the criterion of being representative for a larger ecosystem. Not covered however are more intangible, cultural ecosystem services. The more intangible cultural services are such as recreation, spiritual, information, aesthetic and heritage (Potschin and Haines-Young 2011). It could be a consideration to include these as well in the assessment, since some of these are under threat as well, not by resource extraction (such as timber harvesting), but by the impact of globalization, e.g. tourism, which affects indigenous cultures or results in high pressure on cultural heritage sites. This would widen the view on the topic of sustainable use.

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

There is no mention of indicators for the assessment of SUB. There is an increasing set of biodiversity indicators for the group of food and medicines (see e.g. Pereira et al. 2013 on biodiversity metrics) or timber (Skidmore et al. 2015). Although a unified set of ecosystem service indicators may not be realistic considering the diversity in systems which is assessed, it would be important for IPBES to provide a clear, and limited set of indicators. The ES community is still overly reliant on simple production indicators (forests, croplands and fisheries) as surrogates. The proposed indicators must be "biodiversity and ecosystem service indicators" that reduce the confusion around what is, and what is not an ecosystem service. In the next 5-10 years from now it is likely that there will be a surge in remotely sensed BES indicators that will facilitate the assessment of SUB and ecosystem services (Mayaux et al. 2013; Skidmore et al. 2015).

### Critical and sensitive points

A critical issue now in view of the time and budget constraints for IPBES is whether the assessment 3b(iii) on 'sustainable use' should be done in the period of 2014-18, should be postponed, or whether it should be combined with the regional assessments. When included in regional assessment, however, this would obviously not lead to a systematic approach, comparing traditional systems in management and conservation of resources.

IPBES is about the conservation and sustainable use of biodiversity (Díaz et al. 2015). In particular this assessment 3b(iii) deals with the aspect of sustainable use, and all its challenges of working at different scales. For that reason it is a major contribution of IPBES towards the conservation agenda, which goes beyond existing initiatives, reporting on biodiversity such as the CBD and AICHI biodiversity targets (Pereira et al. 2013). Quite rightly, the rationale of the scoping document mentions (in C.8) that knowledge about wild species, drivers of use and policy instruments and management systems are vital for developing approaches of sustainable use. Sustainable use is also explicitly referred to in the AICHI biodiversity targets. For that reason it is important that a solution is found for the funding of this part of the work program.

The debate on sustainable use has matured. In particular in Africa the initial CAMPFIRE project (Bond et al. 2001; Frost and Bond 2008) has been succeeded by many projects rooted in traditional use and rights of indigenous people. The assessment would not only review the experiences made so far, but would also contribute to conservation through outreach towards all stakeholders involved in IPBES.

The capacity building is an important part in this scoping for sustainable use. The IPBES platform could help in particular with the development of governance models, the capacity building and to integrate all necessary factors and stakeholders. An important capability mentioned in the scoping document is the development of sustainable management plans (VI.28). However, also the development and support of a community of practice can be an important additional benefit. In the Netherlands we do have specific expertise which is relevant which could be brought in.

### Vision

The agenda for IPBES is important for further developing the knowledge and capacities on sustainable use. The aspects of budget should be solved, and the EU (or Dutch Government) could be supportive in this process. There is a lot of expertise with regard to resource utilization, governance models, forestry, NTFPs, tourism development, which could support the process. Even a TSU could be considered for this theme.

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

In the end, an inclusive process for IPBES is essential to come to conservation of biodiversity and a balanced economic development (Van der Sluis and Turnhout 2014). The full implementation of the assessment of sustainable use, in line with the scoping document, is therefore an important contribution and should not be postponed.

### References

- Arts B, Behagel J, van Bommel S et al (2013) Prelude to Practice: Introducing a Practice Based Approach to Forest and Nature Governance. Forest and Nature Governance, World Forests. Springer Netherlands, pp. 3-21
- Bond I, Hulme D, Murphree M (2001) CAMPFIRE & the incentives for institutional change. African wildlife and livelihoods: The promise and performance of community conservation:227-243
- Díaz S, Demissew S, Carabias J et al (2015) The IPBES Conceptual Framework — connecting nature and people. Current Opinion in Environmental Sustainability 14:1-16
- Frost PG, Bond I (2008) The CAMPFIRE programme in Zimbabwe: payments for wildlife services. Ecological Economics 65(4):776-787
- Hitchcock RK, Sapignoli M, Babchuk WA (2011) What about our rights? Settlements, subsistence and livelihood security among Central Kalahari San and Bakgalagadi. The International Journal of Human Rights 15(1):62-88
- Mayaux P, Pekel J-F, Desclée B et al (2013) State and evolution of the African rainforests between 1990 and 2010. Philosophical Transactions of the Royal Society B: Biological Sciences 368(1625)
- Pereira HM, Ferrier S, Walters M et al (2013) Essential Biodiversity Variables. Science 339(6117):277-278
- Potschin MB, Haines-Young RH (2011) Ecosystem services Exploring a geographical perspective. Progress in Physical Geography 35(5):575-594
- Roe D, Mayers J, Grieg-Gran M, Kothari A, Fabricius C, Hughes R (2000) Evaluating Eden. IIED, London
- Skidmore AK, Pettorelli N, Nicholas C. Coops et al (2015) Agree on biodiversity metrics to track from space. Nature
- Slingenberg A, Braat L, van der Windt H, Rademaekers K, Eichler L, Turner K (2009) Study on understanding the causes of biodiversity loss and the policy assessment framework. ECORYS, Rotterdam, pp. 206
- Soberón J, Peterson AT (2015) Biodiversity Governance: A Tower of Babel of Scales and Cultures. PLoS Biology 13(3):e1002108
- Van der Sluis T (1992) Land Use Plan and Development Plan for Natural & Human Resources, Planning Zone 6, Ngamiland West. Ministry of Agriculture / District Land Use Planning Unit, Maun, Botswana,
- Van der Sluis T, Turnhout E (2014) IPBES: garanties voor succes? Landschap 2014(2):88-89

## **3(c): Thematic assessments of scenario analysis and modelling of biodiversity and ecosystem services**

Dr. Marta Pérez-Soba

Senior researcher Team Earth Informatics, Wageningen University and Research Centre,  
marta.perezsoba@wur.nl

### **Introduction**

This deliverable sets the foundations for the use of scenarios and models in all activities under IPBES. Scenarios and models are key policy support tools as they help to look at the effectiveness of policy responses and into the future trends (to 2050). Particularly, they alert decision makers to undesirable future impacts of global changes such as land use change, invasive alien species, overexploitation, climate change and pollution; provide decision support for developing adaptive management strategies; and explore the implications of alternative social-ecological development pathways and policy options. Future pathways can be identified, ranging from those with undesirable risks and impacts on human well-being, to those attaining the goal of conserving and using biodiversity. This deliverable is therefore considered to be crucial for the successful functioning of IPBES at the science-policy interface. The first technical report provides a fast-track, but still very comprehensive, methodological assessment of existing work on scenario analysis and modelling of biodiversity and ecosystem services, including participatory methods.

The work foresees two main activities :

- 1) provide expert advise on the use of existing models and scenarios to address the current needs of the Platform in the thematic, regional and global assessments, and all the future work under the Platform to ensure the policy relevance of its deliverables (decision IPBES -2/5, Annex I);
- 2) catalyse the development of databases and geospatial data linked to the scenario analysis and modelling by the broader scientific community, for the future work of the Platform.

The work on scenarios and modelling is therefore critical to all platform's assessments, which explains why this deliverable is one of the first products of the Platform. The findings of the deliverable are expected to result in an evolving guide.

The expert assessment is based on two documents:

- Proposal on the further development of tools and methodologies regarding scenarios and modelling (November 2015);
- Technical report of the methodological assessment of scenarios and models of biodiversity and ecosystem services (January 2016)

## Document analysis

1. Proposal on the further development of tools and methodologies regarding scenarios and modelling (November 2015).

This is a note by the secretariat to the Plenary at its fourth session, explaining the rationale behind the Deliverable (why is the assessment needed for the Platform), the activities and expected outcomes. The Annex includes the Terms of Reference for the work, specifying the rationales and objectives, proposed work, institutional arrangements, schedule of work and cost.

2. Technical report of the methodological assessment of scenarios and models of biodiversity and ecosystem services (January 2016).

This is the full technical report (not yet formally edited) on the methodological assessment of scenarios and models of biodiversity and ecosystem services for acceptance of the Plenary. It includes eight chapters. The first chapter is intended for a broader, less technical audience than the other chapters of the report. Each chapter examines in greater depth a subset of issues and challenges associated with scenario analysis and modelling. I have summarised the main issues and provided in italics some personal comments.

1. Overview and vision. Introduces the background, purpose and scope of the methodological assessment; provides a general introduction to the role of scenarios and models in policy and decision making; and outlines the structure of the remaining chapters of the report. It describes the relationships between elements of the disputed IPBES Conceptual Framework developed by Diaz et al. (2015), with the roles of scenarios and models. I would advise to read this chapter to get a good overview of the assessment.

2. Using scenarios and models to inform decision making in policy design and implementation. Explains the importance of the decision context as main driver of the needs of policy makers for decision support. Provides an overview and typology of policy and decision-making contexts. Sets the scene for the next three chapters to identify the scenarios and models needed in these different contexts. It identifies barriers for use of scenarios in decision making as well as knowledge gaps and capacity-building needs. This chapter is probably the less developed chapter of the report: lots of valuable information but not yet well synthesized. In my view, the conclusion that “insufficient financial resources are allocated to collecting data ... relevant to most decision problems, irrespective of the magnitude of potential impacts.” is questionable. In fact, there are large amount of data. The main needs rather relate to quality control and harmonisation of data (and models), and free access to data. Chapter 8 underpins this view stressing that there are significant gaps in data availability and data access for biodiversity and ecosystem services.

3. Building scenarios and models of drivers of biodiversity and ecosystem change. This chapter begins with an examination of methodological approaches, including participatory and expert-based methods, to developing scenarios followed by a summary of scenario types employed within the field of environmental assessments and decision-making. The uses and implications of several scenario approaches as well as ex-ante and ex-post assessments are explored. Modelling methods and the linkages between models are presented followed by detailed overviews of prominent scenarios and models of indirect and direct anthropogenic drivers. The chapter concludes with an examination of the research needs and gaps that need to be addressed as biodiversity and ecosystem services

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

assessments progress. This chapter clearly synthesizes the broad range of approaches. It includes an interesting figure showing the main scenario approaches within the Policy Cycle Context, which is illustrated in text boxes with examples of each approach. Particularly interesting are the sections on scenarios and models of indirect drivers (socioeconomic and demographic trends, technological developments and societal drivers such as culture and government) and direct drivers ( lands use change, climate change and pollution, natural resource use and exploitation and invasive species), with comparable tables showing their degree of uncertainty and utilization in scenarios.

4. Modelling impacts of drivers on biodiversity and ecosystems. Explores key issues in modelling impacts of changes in direct drivers on biodiversity and ecosystems. Critically reviews major types of models for generating outputs that are either directly relevant to assessment and decision-support activities, or are required as inputs to subsequent modelling of nature's benefits to people. Aimed mostly at a more technical audience, i.e. scientists and practitioners wanting to identify appropriate biodiversity and ecosystem modelling approaches for particular applications. It includes a novel section on Indigenous and Local Knowledge, as their knowledge may offer valuable insights, complementing scientific data with chronological and landscape-specific precision and detail that is critical for verifying models and evaluating scenarios developed by scientists at much broader spatial and temporal scale.

5. Modelling consequences of change in biodiversity and ecosystems for nature's benefits to people. Describes the current state of ecosystem system service models and modelling approaches for IPBES assessments and other users of ecosystem service models. Highlights the strengths and weaknesses of different approaches to modelling ecosystem services, and critically reviews major types of ecosystem-service models for generating outputs of relevance to different policy and decision-making contexts. Aimed mostly at a more technical audience, i.e. scientists and practitioners wanting to identify relevant approaches to modelling ecosystem services for particular applications. Each context will require a specific model targeted to the local issues and data available.

6. Linking and harmonizing scenarios and models across scales and domains. Critically reviews approaches to linking and harmonizing the various types of scenarios and models described in the former chapters across scales, domains and elements, thereby better serving the diverse needs of policy and decision-making; and proposes ways in which IPBES might best achieve such integration in its own assessments. Although aimed mostly at a technical audience, this chapter is relevant to understand the complexity of an assessment reflecting the interconnections between biodiversity, ecosystem services and their drivers that in addition can span multiple spatial and temporal scales.

7. Building capacity for developing, interpreting and using scenarios and models. Critically reviews challenges and potential solutions for building capacity in the development and use of scenarios and models across different scales and regions, and across a wide range of policy and decision-making contexts. This chapter also provides guidance on strategies to develop capacity for effective participation in the development and use of scenarios and models in IPBES assessments. Interesting finding is that training can help to integrate biodiversity and ecosystem services concepts into national and global policy and decision making, as they are now under-developed and not commonly utilised.

8. Improving the rigour and usefulness of scenarios and models through ongoing evaluation and refinement. Provides guidance on where best to direct future IPBES effort and support in developing

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

and applying scenarios and models. One of the main recommendations is to encourage the IPBES expert group on scenarios to develop guidelines for verification and validation of models, and for assessing and managing uncertainty in scenario analysis and modelling. They also suggest a key role for the Task Force on Capacity-Building (Deliverable 1a/b), in supporting the use of models and scenarios in assessments, and interaction among social and natural scientists and multiple stakeholders. Finally they propose a role for the Task Force on Knowledge, Information and Data (Deliverable 1d) to encourage basic research that advances scenario analysis and modelling in contexts and scales that are relevant to IPBES with the ultimate objective of decision support, especially research on including socio-cultural aspects in modelling and scenario development.

### Assessment and position

1. The work done so far in this deliverable offers a comprehensive overview of the state of the art at global level on scenarios and modelling methodologies. This is a good starting point and a valuable knowledge resource. In order to get a more in-depth knowledge of the current issues it would be advisable to read chapters 1 and 8, already written for policy makers; the other chapters remain rather technical. If there are some questions on these chapters, I will be happy to answer them.
2. As review, there is nothing new. What it would be of great added value and is currently missing is a conclusion chapter that integrates and prioritises the list of findings and recommendations in each chapter. What will be the impact of investing on more models and scenarios, capacity building, etc. and why? It will be important to make sure that IPBES prioritizes those elements where it is innovative and has added value. This may imply a reconsideration of the allocation of resources in the IPBES work program.
3. It is important to notice the large amount of resources being spent in this massive review, which has been already partly done by other organisations (e.g. CBD). In my view, investing more funds (as it is suggested in the Report) in new scenarios and models will not help to stop the loss of biodiversity and improve the management of natural resources. The main priority now is in supporting the implementation of the policies already in place all over the world. How IPBES can help to achieve this implementation? A key message to IPBES could be to use all the existing scenarios, models and technology available to implement the Biodiversity policies as far as possible (e.g. EU Biodiversity Strategy). In this regard Chapter 7 on capacity building is probably the most innovative regarding this issue. It is crucial to organise participative workshops where decision makers and experts work together with the help of simple, transparent models and interactive tools.
4. A missing discussion in the report is about the crucial integration of the ecological knowledge into economic decision process. Current scenario and modelling methodologies are still not able to do this. There is current novel work on this issue being developed in the FP7 OpenNESS project (report available for distribution).
5. I have serious doubts about the achievement of this deliverable ambitious targets within the IPBES process: provide expert advice on the use of existing models and; and catalysing development of scenarios and associated models. For example: how to make available the relevant scenario outputs from the global scientific community? Who decides which ones are relevant? For what context? Who is going to coordinate in an effective way the use of scenarios and models to allow comparisons among regional, global and thematic assessments? Who is going to populate and

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

maintain (quality control and inclusion of new methods) a database of existing literature at global level? The ambition to have web-based platforms for scenario and modelling outputs have happened before and failed due to the lack of resources. Consequently, if this deliverable is to succeed, it would be crucial to answer these questions before the further development of the online platform.

Member states should stimulate (how?) national experts and networks to populate the catalogue by submitting descriptions of tools and experiences.

6. The review has some omissions. For example at European level, they ignore the relevant work on mapping/modelling and assessment of ecosystem services being carried out by the European Commission through the DG ENV MAES Working Group since 2012. MAES WG has been successful in creating a large and committed community of practice among Member States, strengthening the knowledge base and supporting the concepts of ecosystem services and natural capital to be better captured in policy-making. The last MAES Delivery Workshop (Brussels, 15-16 December 2015) acknowledged the complementarity and potential synergies between MAES WG and the regional assessment for Europe and Central Asia by IPBES. MAES will provide a robust baseline for the assessment of the status and trends on biodiversity and ecosystem services that could support IPBES scenario work. But maybe these omissions are on purpose – they do not want to address regional initiatives?

### **3(d): “Scoping for the methodological assessment regarding diverse conceptualisation of multiple values of nature and its benefits, including biodiversity and ecosystem services**

IPBES 4/9 Note by the Secretariat, 12 November 2015 (7 pp)

To be discussed at the Third session of the IPBES Plenary, Kuala Lumpur, 22-28 February 2016.

Comments by Dolf de Groot, ESA-WU, version 3 Jan 2016

Prepared at the request of Theo vd Sluis, Alterra, as contribution to the advice for the Ministry of Economic Affairs in preparation of the Dutch input into the IPBES meeting in Kuala Lumpur

– · –

#### **Introduction**

NOTE/Question: I only had access to the above mentioned 7-page document; I am not sure this is indeed the complete set of background documents

This scoping study, as outlined in the attached ‘note by the secretariat’ (7 pp), to be carried out between February 2016 and March 2017, aims to “ ... asses; a) the conceptualization of values of nature and its benefits, including biodiversity and ecosystem services ....; b) the diverse valuation methodologies and approaches; c) the different approaches that acknowledge, bridge and integrate the diverse values and valuation methodologies for policy and decision-making support; and (d) knowledge and data gaps and uncertainties.”

An important rationale is to revise the preliminary guidelines for valuation (IPBES/4/IN/13) to facilitate national assessments and policy formulation to implement the work program of the CBD-Aichi Biodiversity Targets 1 + 2: Target 1, “by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably” , and Target 2, “by 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems”.

#### **Analysis**

Since the “Note by the Secretariat” (from now on referred to as “the Note”) is a short document that outlines the type of work to be done by the actual assessment, to be carried out by a substantial group of authors (68+) between February 2016 and March 2017 (budget 874.500 US \$), there is not much ‘substance’ in the 7-page document I had available.

In the next five paragraphs I give a brief summary of my main observations after reading the document ... [eventueel nog aanvullen met input van anderen, e.g. interviews met enkele selected experts = EZ-contact persoon...[wie is dat?]

#### **Value concept and types.**

The Note acknowledges the diverse conceptualizations of values and states that the “focuses of value will be nature, nature’s benefits to people and a good quality of life”, and the values to consider will be “intrinsic, instrumental (including e.g. use and non-use values, bequest values, option values) and relational values” (p.3) [check]

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

This is formulated a bit confusingly: the three ‘focuses’ are interdependent (a good quality of life depends on benefits people get from nature which in turn depend on nature ‘itself’) and it is not clear what is meant by the distinction between concept and approach (see next point). Also the three types of values (intrinsic, instrumental and relational) are a bit different from the usual typology, e.g. some authors prefer to use ‘systemic’ (ecological or functional) value instead of relational value.

### Valuation methodologies.

The Note mentions that “Chapter 3 will assess different valuation methodologies and approaches, including biophysical, social and cultural, economic, health and holistic (incl. indigenous and local community based) methodologies and approaches, as well as approaches for the integration and bridging of different types of values” (point 17, p4)

#### a. Use of terms

-I find the distinction between ‘approaches’ (biophysical, social and cultural, economic, health and holistic) and ‘concept/type of value’ (nature, nature’s benefits to people and a good quality of life). (see point 2.1 above) a bit unclear/confusing. It seems to try to describe the same thing (i.e. what is the subject valuation) but then in different terms. Make sure the Assessment will explain this clearly

-On page 2, biophysical, social and cultural, economic, health and holistic are defined as values, not methodologies -> check consistency

-On several places in the Note it is emphasised that integration & bridging of values is very important; this is indeed a very important if not crucial issue but is not really worked out in the Note

#### b. Explanation of valuation methods

-Point 9, p.3: “The consideration of biophysical values ... will be acknowledged but will not involve a detailed assessment of the mechanistic links between ecosystem process and functions and the delivery of benefits to people which is the subject of other assessments of the Platform”. I agree with the last part of this statement but do think the Assessment should pay attention to methods (and guidelines) how to measure these biophysical values (and select the relevant ones). There is much research going on in this area (e.g. on ES indicators and measurement tools (TESSA) and the various value-domains are truly to be integrated they should all be quantified as much as possible.

- Regarding Social and Cultural values the Note mentions the need to “recognize culturally different world views” (point 11, p.3) but no information is given about what type of social and cultural values can be distinguished, and how they can be measured. I assume that will be done in the actual assessment but it would be good to state this more explicitly.

- Regarding economic values the note is also very vague, I could not find a definition of economic values (many authors see social (an even cultural) values as being part of economic valuation) not of measurement methods (notably monetary valuation). I assume this will be addressed by the actual assessment but it would be good to state this explicitly.

- ‘health’ and ‘holistic’ values are not discussed in any detail.

# IPBES Agenda - viewpoints submitted to Min. of EZ

---

## **Distributional issues (intra- & inter-generational) and notion of Natural Capital.**

In point 18, p.4, the need to address distributional issues is emphasised but curiously no reference is made to the notion of 'Natural Capital' and the need to not only assess marginal values (resulting from gradual changes in supply and demand) but also the Total Value. Many changes in 'nature' are not marginal, especially i.r.t. land use change and to make better informed decisions about the trade-offs between land use options the concept of Total Value (integrating ecological, socio-cultural and economic values) and integrated (or social) Cost-Benefit Analysis is essential.

I also miss reference to the need to acknowledge differences in valuation of flows (usually measured in marginal terms) and stocks (= Total Value of the involved 'nature' (ecosystem)).

Finally, to assess inter-generational effects it is essential to calculate the Capital or Net Present Value of 'nature' (ecosystems) which raises the issue of appropriate discount rates.

I assume the actual assessment will address the above issues but I think it is important to mention this explicitly in the Note

## **Definition and typology of Ecosystem Services (ES)**

Other than a brief remark in point 3 (where the terms provisioning, regulating, and cultural services are mentioned) the Note does not discuss the rationale for this typology nor gives a definition of ES to be used in the assessment. I assume this is because this is supposed to be known by the authors (experts) who will do the assessment, and who will use the IPBES Framework as basis) but I think it is important to clarify this since there is still an ongoing debate about the definition and typology of ES.

IPBES seems to have adopted the CICES-typology, which excludes Supporting services (as used in the MA) and does not explicitly mention Habitat as a separate main category (as was done in the TEEB study). This choice is a bit curious considering the emphasis IPBES places on separating between Biodiversity AND ecosystem services since Habitat services (and also Supporting services) provide the 'glue' between ecosystem structure, function and service. Acknowledging Habitat and Supporting services emphasises the need to look at the "whole" ecosystem in a holistic way, not just at single services within the 3 other categories. It also helps to avoid falling the trap of marginal valuation since supply of habitat and supporting services depend on the 'health' of the entire ecosystem and thus the Total Value.

I assume this has been discussed extensively during the conceptualisation of the IPBES Framework, and this assessment will not re-open that debate it to do justice to the diversity of opinions among scholars in the field I think it is important to at least mention this issue and explain how the assessment will deal with it.

## **Data availability and key information sources .**

To achieve the Aichi Targets 1 and 2, quantitative information is crucial. This is not explicitly mentioned in the note and the only section referring to information (data) needs is point 21 (p.4) which gives a list of recent and ongoing assessments (like MA, TEEB, WB (Wealth Accounting), EU-MAES, etc.) but does not mention the existence of databases (like ..... ) and the organisations that maintain them (e.g. the Ecosystem Services Partnership: [www.es-partnership.org](http://www.es-partnership.org)).

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

Looking at the list of selected experts I am confident most of the issues will (or can) be addressed and quite a few experts are active in ESP: Patricia Balvanera, Erik Gomez-Baggethun, Patrick O'Farrell, and MEP-member Sandra Diaz).

QUESTION: did the 'selected experts' contribute to this scoping paper or are they listed to be asked for the actual assessment?

### **Additional input / priorities / discussion points**

Overall I think the Note gives a good overview of the subject-matter and although I have several comments I think the list of experts mentioned should allow for a balanced assessment.

Regarding priorities I think the integrative/holistic approach is quite essential. Having been involved myself as coordinating lead author in the MA & TEEB studies I know how difficult this is and I am therefore a bit concerned that the Note remains quite vague about how this is to be achieved. This needs to be clarified more, notably 'health' and 'holistic' as separate values need further explanation.

Re distributional issues I miss reference to notions of Natural capital and the concept of Total Value (integrating ecological, socio-cultural and economic values), which could help to achieve the integrative/holistic approach advocated by the Note.

Re data availability and information sources the Note is quite brief and it would be important to mention a few key organisation and references; e.g. ....[I can add a few]

Good guidelines for integrated valuation are essential; this is briefly mentioned in the text [.....] but is not part of the overall title of the scoping note and assessment -> make sure this will receive sufficient attention

### **Vision / advice to EZ**

-Bring the main discussion points (see point 3) into the discussion for finalising the scoping note / assignment

-Some key-information sources/organisations in the Netherlands that could (should) be consulted would be: a) several research groups at Wageningen UR (ESA, Alterra, ...) and b) the Ecosystem Services Partnership-secretariat ...

[als dit laatste punt ('reclame' voor enkele Nederlandse org. OK is kan ik dat nog wat verder uitwerken)

## 4C Policy support tools and methodologies

Esther Turnhout

Full professor 'The politics of Environmental Knowledge'

Forest and Nature Conservation Policy Group

Wageningen University, esther.turnhout@wur.nl

### Summary

This deliverable is an important part of IPBES' functioning at the science policy interface. By supplying decision makers with tools they can use to inform their decisions, this deliverable has the potential to bridge the gap between available knowledge (e.g. Assessments) and the actual use of that knowledge.

There is a wide variety of tools that decision makers at different levels and scales can use. A large part of the work in this deliverable has focused on developing a structured way to present these tools in a way that they are linked to the specific needs of the users. To that end, the expert group for this deliverable has produced a guidance document (currently annex 2 called "Revised outline for a catalogue of policy support tools and methodologies"). The document offers decision makers four different entry points to help them select the right tools for the job:

1. Phase of the policy cycle (where you are in the policy cycle determines what tools are useful). This entry point conceptualizes the policy process as consisting of three partly overlapping circles: agenda setting and review, policy design and decisions, policy implementation.
2. Families of tools and methodologies (an explanation of broad categories of tools). This entry point distinguishes seven families of tools: 1 assembling data and knowledge (including monitoring), 2 assessment and evaluation, 3 Public discussion, involvement and participatory processes, 4 selection and design of policy instruments, 5 Implementation, outreach and enforcement, 6 training and capacity building, 7 Social learning, innovation and adaptive governance.
3. Specific aspects or challenges in the IBES conceptual framework (different tools are available for different arrows and boxes of the framework). This entry point follows the IPBES conceptual framework and identifies 6 elements: A: Indirect drivers, B: Direct drivers, C: Nature, D: Nature's benefit to people, E: good quality of life, F: Anthropogenic assets, numerous interactions between these elements and cross cutting issues.
4. Other MEAS. The idea of this entry point is that the online catalogue can also be used to support the implementation of seven other Multilateral Environmental Agreements that focus on biodiversity and ecosystem services: the Convention on Biological Diversity (year of entry into force: 1993), the Convention on Conservation of Migratory Species, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1975), the International Treaty on Plant Genetic Resources for Food and Agriculture (2004), the Ramsar Convention on Wetlands (1971), the World Heritage Convention (1972) and the International Plant Protection Convention (1952). The entry point distinguishes a number of activities where policy support tools can be used: 1 Strategies, action plans and targets of MEAs, 2 Compliance, monitoring and enforcement of MEAs, 3 national reporting of MEAs, 4 capacity building for implementation of MEAs, 5 Multi-stakeholder consultations for MEAs implementation.

The idea of the entry points is that in the online catalogue users can choose an entry point.

Subsequently they make further choices about categories for each entry point and end up with

## IPBES Agenda - viewpoints submitted to Min. of EZ

---

options for tools to be used (in that sense, the catalogue is envisioned to function as a support tool for the selection of policy support tools).

It has been suggested that the new UNDP-managed BES-Net web portal could host the catalogue online. They would provide the technical infrastructure according to the design with the entry points that was developed by the working group. The actual population of the catalogue is however a different matter. The main idea is that all interested parties can both be beneficiaries and contributors of the catalogue in order to make sure that, as the report puts it: “rather than an inert depository of tools and methodologies, the catalogue becomes a ‘living’ dynamic and interactive system”. All relevant knowledge holders would in principle be able to submit policy support tools. A more restricted group of experts would then have the task of controlling quality, appropriately categorizing the support tools, updating the catalogue and so on.

### Assessment and position

The work done so far in this deliverable offers a good starting point and a valuable resource. I have doubts about the usefulness of all entry points. I suspect that most available tools will cover multiple, if not all phases of the policy cycle and cover multiple elements of the IPBES conceptual framework and therefore these entry points and the categorizations offered will not have too much discriminatory value. The ‘families of tools’ entry point does in my view offer a useful classification of tools. Having said this, the actual usefulness of the work done so far, will depend very much on the actual development of the online platform.

If this deliverable is to succeed, it is important to support the further development of the online platform. In my view, BES-Net is an attractive host, which allows for synergies with other UN initiatives while at the same time allowing sufficient flexibility and visibility for the specific needs of IPBES. It will be important that member states activate national experts and networks to populate the catalogue by submitting descriptions of tools and experiences. There is also a role for the expert group to catalyze the population of the catalogue, control quality and include tools in the catalogue.

More generally, this deliverable, together with work of IPBES on the conceptualization of values, local and indigenous knowledge and capacity building, is where the innovation of IPBES lies. This set of deliverables and activities in the work program is crucial to IPBES’ potential effectiveness in building a science policy interface, linking knowledge production to use and, ultimately, supporting the conservation of biodiversity in practice. It is my assessment that the importance of this work, which is of a more social science nature, is currently not well reflected in the current allocation of resources in The IPBES work program, the current use of in kind contributions, and the current composition of the MEP. It will be important to make sure that IPBES prioritizes those elements of the work program where it is innovative and has added value. This may require a reconsideration of the allocation of resources in the IPBES work program, a focused effort to enhance the number of policy and humanities experts in the MEP and the effort of member states to enhance the engagement of relevant experts and stakeholders.