Report of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the work of its third session

Annex VIII

Scoping for a thematic assessment of land degradation and restoration (deliverable 3 (b) (i))

I.   Introduction

1.   At the second session of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, held in Antalya, Turkey, from 9 to 14 December 2013, member States approved the initiation of scoping for a thematic assessment of land degradation and restoration. Accordingly, a scoping document was developed by an expert group in accordance with the procedures for the preparation of the Platform's deliverables (IPBES-2/3, annex). The expert group met in Beijing from 9 to 11 September 2014, thanks to generous in-kind support received from China. The present note constitutes the scoping document developed by the expert group. Additional information on the work of the expert group is available in document IPBES/3/INF/18.

II.   Scope, rationale, utility and assumptions

A.   Scope

2.   For the purposes of this thematic assessment, "degraded land" is defined as land in a state that results from persistent decline or loss of biodiversity and ecosystem functions and services that cannot fully recover unaided within decadal time scales. "Land degradation", in turn, refers to the many processes that drive the decline or loss of biodiversity, ecosystem functions or services and includes the degradation of all terrestrial ecosystems. The assessment will include associated aquatic ecosystems that are impacted by land degradation. "Restoration" is defined as any intentional activity that initiates or accelerates the recovery of an ecosystem from a degraded state. The term "rehabilitation" is used to refer to restoration activities that may fall short of fully restoring a biotic community to its pre-degradation state, including natural regeneration and emergent ecosystems. This assessment will include eight chapters, the first four of which will report on the benefits of avoiding degradation and restoring degraded land for human well-being and quality of life (chapter 1); concepts and perceptions of land degradation and restoration, according to different worldviews, including those of indigenous and local people (chapter 2); indirect and direct drivers of degradation processes (chapter 3); the nature and extent of land degradation processes and the resultant loss or decline in biodiversity and ecosystem structure and functioning (chapter 4); and the impact of changes in land degradation and restoration on the delivery of nature's benefits to people and the impact of such changes on the quality of life (chapter 5). The following two chapters will explore the wide range of responses to land degradation by developing and applying a broad framework to assess the effectiveness of interventions intended to prevent, halt, reduce and mitigate processes of land degradation and to rehabilitate or restore degraded land (chapter 6) and a range of development scenarios, including the consideration of different response options and their implications for land degradation regionally and globally (chapter 7). The final chapter (chapter 8) will focus on providing decision support and policy relevant guidance to decision makers at all levels who are responsible for addressing land degradation problems and implementing restoration strategies. The assessment will seek to involve all relevant stakeholders from its inception. The structure of the assessment is based on the conceptual framework adopted by the Plenary of the Platform in its decision IPBES-2/4.

B.   Geographic coverage of the assessment

3.   The assessment will encompass all the terrestrial regions and biomes of the world, recognizing that land degradation drivers and processes can vary in severity within regions and countries as much as between them. The assessment will encompass the full range of human-altered systems, including but not limited to drylands, agricultural and agroforestry systems, savannahs and forests and aquatic systems associated with these areas.

C.   Rationale

4.   Land degradation, which is primarily a direct or indirect result of human activities, is a major problem on every continent except Antarctica. The total human cost of land degradation is not known,

but the Food and Agriculture Organization of the United Nations (FAO) estimates the economic impact at more than $40 billion annually. Building on the work of the Rio conventions (the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity), and the United Nations Conference on Sustainable Development (Rio+20), the goals of halting and reversing land degradation and decoupling economic growth from environmental degradation have been proposed as part of the sustainable development goals. These goals include Convention on Biological Diversity Aichi Biodiversity Targets 5, 7, 14 and 15 and the ongoing process for developing a post-2015 development agenda. In 2011, in recognition of the benefits to people of restoring degraded land, world leaders endorsed the "Bonn Challenge", a global effort to restore 150 million hectares of deforested and degraded land by 2020. As a first step towards meeting that goal, there is a clear need to assess the extent, causes and processes of land degradation and the consequences for biodiversity and people, as well as evaluating responses to the restoration and rehabilitation of degraded land and the avoidance of future degradation and the benefits that this will deliver to people.

D. Utility

5.   This expert-led assessment will provide the information and guidance necessary to support stakeholders working at all levels to reduce the negative environmental, social and economic consequences of land degradation and to rehabilitate and restore degraded land to aid the recovery of nature's benefits to people. It will draw on information from scientific, indigenous and local knowledge systems to increase awareness and identify areas of concern. It will help to identify potential solutions to the challenges posed by land degradation, informing decision makers in public, private and civil society sectors. It will provide a framework for understanding, monitoring and taking action to halt and reverse land degradation in order to support decision-making at all levels and it will identify critical knowledge gaps and priority areas for new research and investment to enhance capacity in the sustainable management of land and biodiversity and their benefits to people.

E. Assumptions

6.   The assessment will be based on both science and other knowledge systems, including indigenous and local knowledge systems. Land degradation is recognized as predominantly anthropogenically driven and as such is ultimately a consequence of the activities of institutions, governance and other indirect drivers (sociopolitical, economic, technological and cultural factors). The restoration of degraded land will be evaluated in its broadest sense, from partial rehabilitation to full restoration of the system to its
pre-degradation state. Addressing direct and indirect drivers of degradation, promoting restoration and designing and implementing sustainable land management systems require a participatory process involving the co-production of knowledge with relevant and diverse stakeholders. The assessment will take account of both the negative impact of land degradation and the benefits to people of preventing, halting, reducing and mitigating degradation and restoring degraded land.

III.   Chapter outline

7.   The assessment will be presented in a summary for policymakers and an eight-chapter report, as set out below. An introduction will briefly review the rationale, utility and assumptions of the assessment, as well as the approach adopted and the rationale for the chapter sequence. An executive summary will present key findings and policy-relevant conclusions.

8.   **Chapter 1. Benefits to people from avoidance of land degradation and restoration of degraded land.** This chapter will present a brief summary of the benefits to human well-being and quality of life that can be achieved by the halting, reduction and mitigation of degradation processes as well as the restoration of degraded land. The chapter will draw on information and insights from all other chapters, highlighting examples of success stories of how land conservation and restoration measures have helped to deliver improvements in livelihoods, reduce poverty and strengthen the long-term sustainability of land use and the extraction of natural resources.

9.   **Chapter 2. Concepts and perceptions of land degradation and restoration.** This chapter will focus on assessing and comparing differing concepts and perceptions of land degradation and restoration, stemming from both science and other knowledge systems, including indigenous and local knowledge. The chapter will also review concepts and approaches used to assess the diversity of land degradation processes, the status of ecosystems and the impact thereon, as well as concepts and approaches used to describe different responses, including rehabilitation and restoration.

10.   **Chapter 3. Direct and indirect drivers of land degradation and restoration.** This chapter will assess how land degradation and restoration are the result of multiple drivers, involving both direct anthropogenic and natural factors and interactions between them, as well as underlying indirect drivers. Direct drivers of degradation (e.g., unsustainable levels of biomass extraction and extractive industries) can result directly in degraded land, including reduction in the productivity of land, or in processes such as soil erosion due to unsustainable land management techniques, and natural drivers, such as floods, wind and drought, that result in land degradation. Direct drivers of restoration, encompassing both passive and active approaches, can result in either halting or reducing degradation and in the recovery of biodiversity and ecosystem functions. Indirect drivers of land degradation and restoration are related to institutions and governance systems, as well as social, cultural, technological and economic factors, including poverty, which underpin direct drivers, at the local to global levels. The chapter will assess the extent and severity of different drivers and how they vary within and between different biomes, regions and land-use systems around the world. The assessment of direct drivers will include anthropogenic drivers at global, national, regional and local scales, including human-driven climate change, as well as natural drivers and interactions between anthropogenic and natural drivers. Particular attention will be paid to climate change and its interaction with other anthropogenic drivers of land degradation, including interactions between processes of land degradation and extreme weather events.

11.   **Chapter 4. Status and trends of land degradation and restoration and associated changes in biodiversity and ecosystem functions.** This chapter will focus on the status and trends of land degradation and restoration in terms of changes in biodiversity and ecosystem functioning, as well as the degradation and restoration processes that result in those changes. Degradation processes include soil erosion, contamination, compaction, sealing, sedimentation, loss of organic matter, soil and water salinization, degradation of freshwater systems, invasion of alien species, changes in natural fire regimes and pollution. Degradation can also include landscape-scale processes such as changes in ecological connectivity, land cover and land use and changes in land management practices. Restoration processes include the avoiding, halting and reversing of degradation processes as well as the recovery of biodiversity and ecosystem functions. The chapter will assess levels of land degradation and restoration with regard to the type, extent and severity of changes in both biodiversity and ecosystem structure and functioning in different biomes and under different land-use and management systems. Changes in biodiversity include changes to both wild biodiversity and agrobiodiversity, including both above-ground and below-ground biodiversity. Changes in ecosystem structure and functioning include aspects such as primary productivity, nutrient cycling and the provision of habitat for species. Particular attention will be given to understanding system resilience (capacity to recover systems structure and functions following a perturbation), including the potential for thresholds and sudden changes in key attributes of biodiversity and critical ecosystem functions.

12.   **Chapter 5. Land degradation and restoration associated with changes in ecosystem services and functions and human well-being and good quality of life**. This chapter will focus on the impact of land degradation and restoration on changes to the delivery of nature's benefits to people and the resultant impact on quality of life. The chapter will assess land degradation associated with the loss of benefits to people including provisioning services, such as food production, quality and quantity of water resources, and availability of raw materials, as well as regulating, cultural services and other aspects of nature, recognizing a diverse conceptualization of the values of nature. The chapter will analyse changes in benefits to people in terms of the relative contribution of biodiversity and ecosystem structure and functioning and that of anthropogenic assets (e.g., technologies, knowledge) applied by people in the co-production of benefits. The impact on the diverse dimensions of a good quality of life will include the impact on health, poverty, income-generating opportunities, meaningful livelihoods, the equitable distribution of natural resources and rights and values considered important in different cultures. The chapter will consider the diverse costs of land degradation and benefits of restoration for people, including the overall economic and non-economic costs and benefits, encompassing those that are associated with the area of degraded or restored land itself, as well as costs or benefits borne by people in other areas who are affected by degraded or restored sites. For both land degradation and restoration the chapter will examine the type, extent and severity of these changes in different social-ecological systems in different land cover and land management systems, including their implications for social and ecological stability and resilience and cultural integrity.

13.   **Chapter 6. Responses to avoid land degradation and restore degraded land.** This chapter will develop a framework for assessing the effectiveness of existing interventions to prevent, halt, reduce and mitigate the processes of land degradation and to rehabilitate and restore degraded land through the recovery of biodiversity and ecosystem structure and functioning and their benefits to people. The chapter will assess how past and current responses to degradation problems and

restoration approaches vary according to context, including the type and severity of land degradation and underlying direct and indirect drivers, as well as the consequences of land degradation and the restoration for nature's benefits to people and quality of life. The chapter will analyse the effectiveness of addressing the indirect causes of land degradation and restoration (institutions, governance systems and other indirect drivers), as compared to efforts to address direct drivers or anthropogenic assets (better techniques, access to training). The chapter will assess the relative success or failure, as well as the potential risks, of different institutional, governance and management response options against a range of social, cultural, economic, technological and political criteria. It will explore how responses to prevent land degradation through sustainable use compare with efforts to deal with its effects through adaptation and restoration. The chapter will also assess different institutional, policy and governance responses based on the type of policy instrument used, as well as support given to research and technology development, institutional reform and capacity-building.

14.   **Chapter 7. Scenarios of land degradation and restoration.** This chapter will explore the implications of a range of plausible development scenarios, including the adoption of different response options across multiple scales, and their implications for land degradation and restoration globally, including impacts on human well-being and quality of life and possible trade-offs between social, economic and environmental objectives. Scenarios will be developed using information derived from the assessment and work from across the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, motivated by a systematic review of other scenario exercises of this type, including the Platform's ongoing methodological assessment of scenario analysis and modelling of biodiversity and ecosystem services, to be released at the end of 2015. The chapter will reveal the variation in plausible land degradation and restoration futures that depend on choices (with associated social and economic implications) made at the landscape, national, subregional, regional and international scales to address indirect and direct drivers and introduce new mechanisms for avoiding land degradation, mitigating its impacts and rehabilitating and restoring degraded sites.

15.   **Chapter 8. Decision support to address land degradation and support restoration of degraded land.** This chapter will consolidate and rationalize information necessary to support evidence-based decision-making and institution-building for policymakers and practitioners responsible for selecting and implementing strategies for addressing land degradation problems and restoring degraded land. The chapter will assess actions necessary to develop institutional competencies in the detection and analysis of land degradation problems and the design, implementation, management and monitoring of response strategies, including data, methods, decision support tools and stakeholder engagement. The chapter will place land degradation problems and potential restoration solutions in the wider policy, socioeconomic and environmental context, emphasizing the importance of institutions, governance and other indirect drivers that are the root drivers of both degradation and restoration. It will consider interactions between land degradation and restoration and other major policy areas such as farming and food, flood risk and water resource management, climate change adaptation and mitigation, invasive species and disease management, biocultural diversity conservation, public health and rural, urban and industrial development.

IV.   Key information to be assessed

16.   The information to be assessed will be drawn from relevant articles, books, regional, national and international assessments, reports by and data from Governments, United Nations bodies and national and international non-governmental organizations and indigenous and local knowledge in accordance with the recommendations of the task force on indigenous and local knowledge,[1] including knowledge that is not available in written form, and in accordance with the procedures for the preparation of Platform deliverables.

V.   Operational structure

17.   The operational structure will consist of a technical support unit (comprising one full-time equivalent Professional staff member). Two co-chairs, 80 authors and 16 review editors will be selected by the Multidisciplinary Expert Panel, in accordance with the procedures for the preparation of the Platform's deliverables.

18.   The head of the technical support unit, the two co-chairs, one representative of the Panel and one representative of the Bureau will hold a management meeting as a first step towards operationalizing the assessment.

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[1] Established by the Plenary by decision IPBES-2/5.

VI. Strategic partnership and initiatives

19.   The land degradation assessment will identify as possible partners organizations that can contribute their data and knowledge; provide in-kind support; act as clients and users of the assessment; and provide assistance at various stages, including by helping to review the assessment. The partnerships entered into will mostly be informal, but a limited number of strategic partnerships may be established. Collaboration will be developed, in particular with the United Nations Convention to Combat Desertification, especially its science-policy interface and its Committee on Science and Technology, as a key user of and a key contributor to the assessment on land degradation. Collaboration should also be developed with the Global Soil Partnership and its Intergovernmental Technical Panel on Soils, which is to produce a first report on the state of the world's soil resources by 5 December 2015.

VII. Process and timetable

20.   The proposed process and timetable for preparing the assessment report, including actions, milestones and institutional arrangements, is set out below.

Date	Actions and institutional arrangements
2015	
First quarter	Plenary at its third session approves the conduct of the land degradation and restoration assessment coupled with the regional assessments of biodiversity and ecosystem services, asks for offers of in-kind technical support for the assessment and requests the Bureau and the secretariat to establish the necessary institutional arrangements to put in place technical support
	The Chair, through the secretariat, requests nominations from Governments and other stakeholders of experts to prepare the assessment report
Second quarter	Secretariat compiles lists of nominations
	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)
	Meeting of the Management Committee (co-chairs, head of the technical support unit, and MEP/Bureau members) to select remaining expert team and respective roles (i.e., coordinating lead authors, lead authors and review editors)
	Selected nominees contacted, gaps filled and list of co-chairs, authors and review editors finalized
Second/early third quarter	First author meeting with 80 participants: co-chairs, coordinating lead authors and lead authors, plus Panel/Bureau members. This group of 80 includes the 20 experts on land degradation involved in the regional assessments (five experts for each of the four regional assessments)
2016	
First quarter	First drafts of chapters prepared (6–7 months) and sent to secretariat (technical support unit) Compilation of chapters into first draft (6 weeks)
Second quarter	First draft of collated regional and subregional land degradation assessments sent for expert review (6 weeks)
	Collation of review comments by secretariat technical support unit for first draft sent to authors (2 weeks)
Second/early Third quarter	Second author meeting coupled with second author meetings of the regional assessments (80 participants, including the 20 authors involved in the regional assessments): **:** co-chairs, coordinating lead authors, lead authors and review editors)
Third quarter	Second drafts of chapters and first draft of summary for policymakers prepared (5–6 months)
2017	
First quarter	Second draft of the assessment and first draft of the summary for policymakers sent for government and expert review (2 months)
First quarter	Collation of review comments for second draft of the assessment and first draft of the summary for policymakers sent to authors (2 weeks)
Second quarter	Third author meeting coupled with third author meetings of the regional assessments (4 x 30 participants: co-chairs, coordinating lead authors and review editors and Panel/Bureau members)
Third quarter	Final text changes to the assessment and the summary for policymakers (3 months)
Third quarter	Translation of the summary for policymakers into the six official languages of the United Nations (1 month)
Fourth quarter	Submission of the assessment, including the translated summary for policymakers, to Governments for final review prior to Plenary session (6 weeks)

	Fourth quarter	Final government comments on the summary for policymakers for consideration by authors prior to next Plenary session
	2018	
	January (To be confirmed)	Plenary to approve/accept the land degradation and restoration assessment, including the summaries for policymakers

VIII. Cost estimate

21. The table below shows the estimated cost of conducting and preparing the assessment report.

Year	Cost item	Assumptions	Estimated costs (United States dollars)
2015	Meeting of co-chairs and secretariat/technical support unit	Meeting costs (1/2 week, 5 participants, in Bonn)	0
		Travel and DSA (3 x $3,750)	11 250
	First author meeting (80 participants: co-chairs, coordinating lead authors and lead authors)	Meeting costs (1 week, 80 participants) (25 per cent in kind)	18 750
		Travel and DSA (64 x $3,750)	240 000
	Technical support	1 full-time equivalent professional position (50 per cent in kind)	75 000
2016	Second author meeting (participants: co-chairs, coordinating lead authors and review editors)	Meeting costs (1 week, 4 x 15 participants) (25 per cent in kind)	0
		Travel and DSA (48 x $3,750)	144 000
	Joint coordination meeting of co-chairs and technical support unit together with co-chairs and technical support units of other thematic assessments	Meeting costs (1 week, 5 participants)	0
		Travel and DSA (3 x $3,750)	11 250
	Technical support	1 full-time equivalent professional position (50 per cent in kind)	75 000
	Participation by the two co-chairs and two coordinating lead authors in fourth session of Plenary		
2017	Third author meeting (30 participants: co-chairs, coordinating lead authors, review editors)	Meeting costs	0
		Travel and DSA (75 x $3,750)	90 000
	Technical support	1 full-time equivalent professional position (50 per cent in kind)	75 000
	Participation by the two co-chairs and two coordinating lead authors in fifth session of Plenary	Travel and DSA (3 x $3,750)	11 250
2018	Dissemination and outreach	Translation of summary for policymakers into the six official languages of the United Nations, publication and outreach	117 000
Total			**868 500**

IX. Communications and outreach

22. The assessment report and its summary for policymakers will be published and the summary for policymakers will be made available in the six official languages of the United Nations. The report and the summary will be made available on the Platform's website (www.ipbes.net). Dissemination will target all Platform stakeholders and will be adapted to the specific needs of different users, following the agreed Platform communications and outreach strategy.

X. Capacity-building

23. Capacity-building activities will be organized in accordance with the implementation plan of the task force on capacity-building, in such areas as implementation of the fellowship programme.