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**Plenary of the Intergovernmental Science-Policy  
Platform on Biodiversity and Ecosystem Services**

**Fourth session**

Kuala Lumpur, 22–28 February 2016

Item 4 of the provisional agenda\*

**Report of the Executive Secretary on the implementation  
of the work programme 2014–2018**

**Progress report on the implementation of the land degradation  
and restoration assessment (deliverable 3 (b) (i))**

**Note by the secretariat**

In its decision IPBES-3/1, the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services approved the undertaking of a thematic assessment on land degradation and restoration, as outlined in the scoping document for the assessment set out in annex VIII to the decision, for consideration by the Plenary at its sixth session. The annex to the present note provides information on the composition and work of the expert group carrying out the land degradation and restoration assessment. It is presented without formal editing.

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\* IPBES/4/1

## Annex

### Expert group for the thematic assessment on land degradation and restoration

#### I. Composition of the expert group

##### A. Dedicated Multidisciplinary Expert Panel (MEP) and Bureau members

1. In accordance with the procedures for the preparation of Platform deliverables, the following dedicated MEP and Bureau members are responsible for overseeing the development of this assessment:

Leonel Sierralta (Bureau member)

Jay Ram Adhikari (Bureau member)

Günay Erpul (MEP member)

Yi Huang (MEP member)

Marie Roué (MEP member)

Leng Guan Saw (MEP member)

##### B. Selection of experts

2. The report co-chairs, coordinating lead authors, lead authors and review editors were selected according to the criteria set out in the procedures for the preparation of the Platform's deliverables in the annex to decision IPBES-2/3. A group of 86 experts composed of 2 co-chairs, 18 coordinating lead authors (CLAs) and 66 lead authors (LAs) was selected from a list of 223 nominations received from governments and other stakeholders. The selection process was performed by members of the Multidisciplinary Expert Panel (MEP), with advice from Bureau members, reviewing all nominations that had been submitted with a close examination of the curriculum vitae for each nominee. Selections were made on the basis of candidates' expertise with respect to relevant areas of the work programme. Once selected on merit, further selection was focused on balancing disciplinary, regional and gender diversity, as well as the ratio between governmental and non-governmental nominations of 80 to 20.

3. In its decision IPBES-3/1, the Plenary requested the MEP, in consultation with the Bureau, to develop a coordinated approach between the four on-going regional/subregional assessments, the thematic assessments (which includes the land degradation and restoration assessment), and future assessments (i.e. the global assessment) to ensure consistency and harmonization among them while minimizing redundancy of content, thereby increasing the added value of each assessment. In response to this decision, 38 of the 86 experts will perform their work as lead authors as part of the four ongoing regional/subregional assessments. These experts will ensure that the topic of land degradation and restoration is adequately assessed and evaluated within the regional/subregional assessments. These same experts will also act as lead authors in the land degradation assessment and will contribute remotely to the chapters of the land degradation and restoration assessment. Within these 38 lead authors, a subset of 8 authors (2 per region) are responsible for the coordination of land degradation and restoration information and content across chapters and across assessments. These 8 authors are called Liaison Experts (LEs). Annex I outlines how the chapters of the land degradation and restoration assessment correspond to those of the regional/subregional assessments.

4. The expert group selected includes 16 per cent of experts from Africa, 18 per cent from Asia Pacific, 11 per cent from Eastern Europe, 13 per cent from Latin America and the Caribbean and 42 per cent from Western European and Others Groups. The gender balance is 27 per cent female and 73 per cent male. Eighty per cent of the selected experts were nominated by Governments and the remaining 20 per cent were nominated by stakeholders.

5. The task force on capacity-building launched its IPBES fellows' pilot programme in 2015 (IPBES/4/INF/5). This programme allows young researchers and other professionals to take part in IPBES' activities. A total of 130 nominations were received for the land degradation assessment. The seven selected fellows will contribute as authors in the assessment.

6. The selection and complete list of review editors for the land degradation and restoration assessment is being finalized. A full list of experts, including young fellows and confirmed review editors, is presented in Annex II to this document.

## C. The technical support unit (TSU)

7. The Bureau, in consultation with the MEP, agreed at their 5<sup>th</sup> session (13-17 April 2015 in Bonn, Germany), that the technical support unit would be based at the IPBES Secretariat in Bonn, Germany, and that a consultant would be hired to fulfil this role. The consultant, Ms. Anastasia Brainich, started her position during the 6<sup>th</sup> session of the MEP and Bureau (8-12 October 2015 in Bonn, Germany). In the interim, Ms. Hien Ngo, consultant for the pollination assessment at the IPBES Secretariat, provided necessary technical support.

8. The role of the technical support unit is to provide scientific, technical and organizational support toward the delivery of the assessment report. In addition, the role of the technical support unit is to liaise with relevant task forces and other technical support units of on-going assessments to ensure that cross-cutting issues are properly addressed.

## II. Progress towards preparation of the assessment report

### A. Management Committee Meeting

9. A management meeting was held from 13 to 15 July 2015 at the headquarters of the International Council for Sciences (ICSU) in Paris, France. In attendance were the assessment co-chairs, dedicated MEP and Bureau members, and the interim technical support person. The main objectives of the meeting were to plan for the first author meeting, to prepare an annotated chapter outline, and to finalize the selection of experts (including resource people, and young fellows).

### B. First author meeting

10. The first author meeting was held from 20 to 24 September 2015 in Bonn, Germany. In attendance were 58 experts including the two assessment co-chairs, 18 CLAs, 31 LAs, and 7 fellows. Five LAs were unable to attend the meeting. The 30 land degradation experts embedded within the four regional assessments attended their respective regional first author meetings.

11. In addition to the aforementioned experts, participants to the first author meeting included members of the Secretariat, comprising of the technical support person, dedicated MEP and Bureau members, and representatives of various task forces and experts groups, including: i) scenarios and models, ii) valuation, iii) knowledge and data, iv) indigenous and local knowledge, and v) capacity-building.

12. The experts at the first author meeting were presented with background information on the following:

- Organization, overall objectives and functions of IPBES;
- The guiding conceptual framework of IPBES and the rules of procedure relevant to the production of an assessment;
- Existing IPBES guides, tools, and task forces (and their role in the context of an assessment);

13. During the meeting, the experts discussed the following issues:

- Detailed chapter outlines and content;
- Cross-chapter themes and topics;
- Internal chapter deadlines and strategies for coordinating content with the four on-going regional/subregional assessments;
- Operationalization of the shared drive for literature and working documents.

14. The meeting resulted in draft chapter outlines with sub-sectional headers for further content development (see Annex III to this report). This draft was based on the scoping report outlined in Annex VIII to decision IPBES-3/1.

### C. Preparation of the zero order draft for the thematic assessment on land degradation and restoration

15. Following the first author meeting authors started to prepare the first draft of a report, called the zero order draft, which is due 21 December 2015. The zero order draft was submitted for an internal review on 22 December (i.e. circulated only among experts of the chapters and the co-chairs) for a period of four weeks until 15 January 2016.

16. From January to May (2016) leading up to the First Order Draft review by experts (June, 2016), the authors will continue developing assessment content which includes revisions resulting from the multiple internal review processes.

#### **D. Second author meeting**

17. The second author meeting will be held 22 to 26 August 2016 (Bonn, Germany), jointly between the land degradation and restoration assessment and the four regional/subregional assessments. This joint second author meeting will include assessment co-chairs, coordinating lead authors, liaison experts, and review editors of the five assessments. In addition, members of the Multidisciplinary Expert Panel, Bureau, relevant task forces and IPBES secretariat will be present. The joint second author meeting will address the following issues:

- Developing key messages for the executive summaries of each chapter;
- Addressing cross-cutting and overlapping issues across chapters and assessments;
- Prioritizing and handling the comments from the expert reviewers; discussing common comments from expert reviewers
- Ensuring continued collaboration between the regional/subregional assessments and the land degradation and restoration assessment.

#### **E. Timeline**

18. An updated annotated timeline is provided in Annex IV.

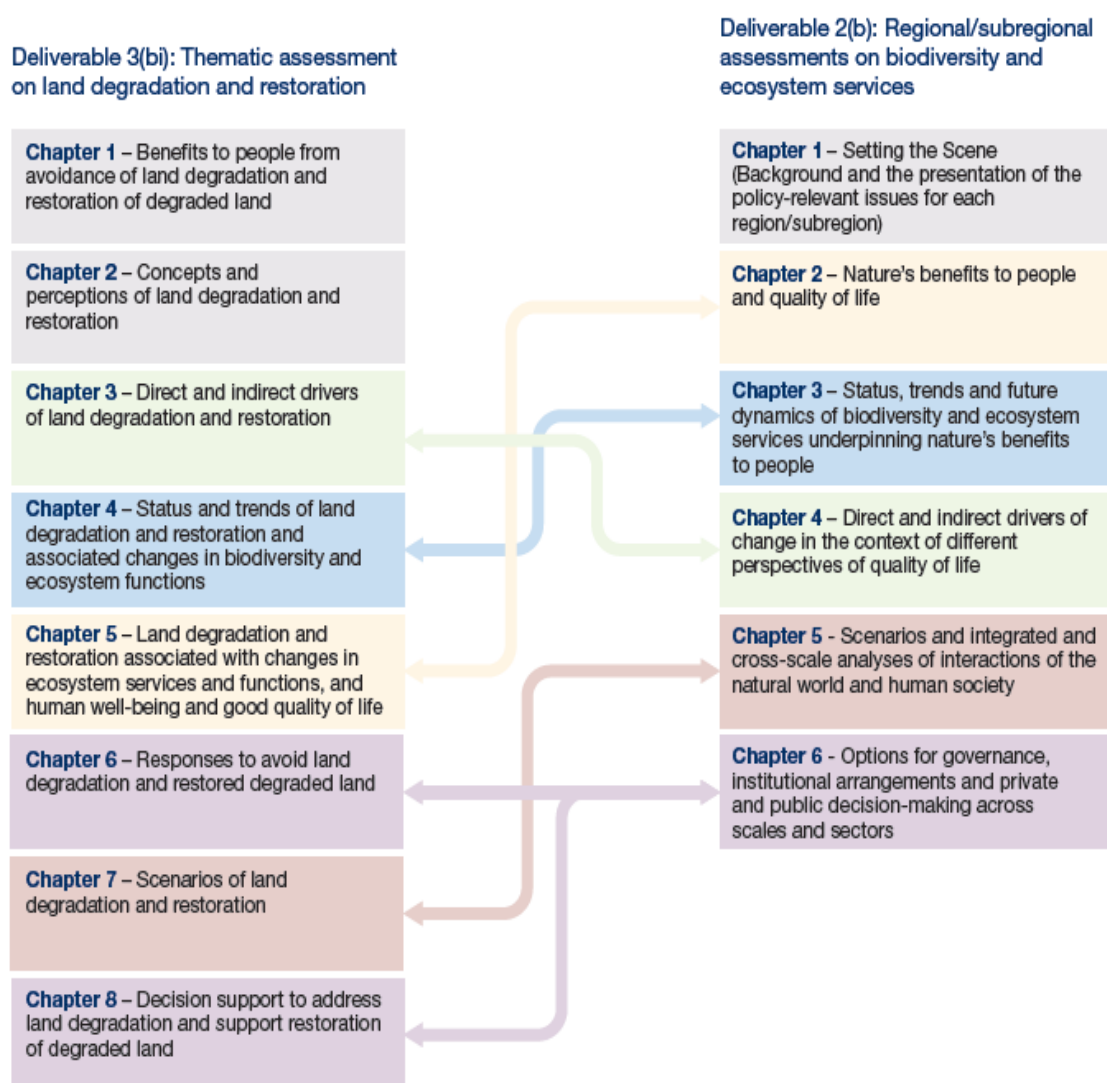
### **III. Progress in work plan and next steps**

19. The first order draft will go out for the First Review by experts on 30 May 2016 for a period of 6 weeks until 11 July 2016. Governments will be notified of the commencement of the first review process 6 weeks in advance. All comments generated by expert reviewers will be collated and provided to the appropriate authors. Relevant authors (coordinating lead authors and lead authors) will be responsible for the chapter revisions and will respond to all comments from expert reviewers.

20. A full list of expert reviewers will be made available on the Platform's website.

## Annex I

## The coupling of the thematic assessment on land degradation and restoration with the regional/subregional assessments on biodiversity and ecosystem services



**Figure 1.** A group of 40 lead authors will perform their work on land degradation and restoration as part of the regional assessments (section B “Selection of Experts”, para. 3). They will contribute remotely, as lead authors, to chapters of the land degradation and restoration assessment, according to the correspondence between chapters shown in the figure.

## Annex II

### List of experts for the thematic assessment on Land degradation and restoration as at 23 December 2015

Abbreviations: CLA (coordinating lead author), LA (lead author), LA 2b (land degradation and restoration expert working as expert within one of the four regional/subregional assessments), RE (review editor)

<i>Role</i>	<i>Name</i>	<i>Affiliation</i>	<i>Nominating Country/Organisation</i>
<b>Assessment co-chairs</b>			
Co-chair	Luca Montanarella	European Commission	Food and Agriculture Organization
Co-chair	Robert Scholes	University of the Witwatersrand	South Africa
<b>Chapter 1: Benefits to people from avoidance of land degradation and restoration of degraded land</b>			
CLA	Judith Fisher	Fisher Research Pty Ltd	Australia
CLA	Sergius Gandolfi	University of Sao Paulo	Brazil
LA & co-chair	Luca Montanarella	European Commission	Food and Agriculture Organization
LA & co-chair	Robert Scholes	University of the Witwatersrand	South Africa
<b>Chapter 2: Concepts and perceptions of land degradation and restoration</b>			
CLA	Florent Kohler	Université de Tours	France
CLA	Tao Wang	Chinese Academy of Sciences	China
LA	Carlton Roberts	Ministry of the Environment and Water Resources, Forestry Division	Trinidad and Tobago
LA	Elie Padonou	Laboratory of Applied Ecology	Aarhus University
LA	Janne Kotiaho	University of Jyväskylä	Finland
LA	Josef Seják	J.E.Purkyne University in Usti nad Labem	Czech Republic
LA	Robin Reid	Colorado State University	United States of America
LA	Laetitia Navarro	German Centre for Integrative Biodiversity Research (iDiv)	Group on Earth Observations Biodiversity Observation Network – GEO BON
LA	Shonil Bhagwat	The Open University	United Kingdom of Great Britain and Northern Ireland
LA	Zita Izakovičová	Institute of Landscape Ecology of the Slovak Academy of Sciences	Slovakia
Fellow	Maylis Desrousseaux	Environmental law institute	Lyon 3 University
RE	Marie-Pierre Ledru	Institute for Research and Development (IRD)	France
<b>Chapter 3: Direct and indirect drivers of land degradation and restoration</b>			
CLA	Nichole Barger	University of Colorado	United States of America
CLA	Mahesh Sankaran	National Centre for Biological Sciences, TIFR	India
CLA & Liaison Expert	Toby Gardner	Stockholm Environment Institute	Sweden
LA	Francisco Moreira	Institute of Agronomy	Portugal
LA	Tiina Maileena Nieminen	Natural Resources Institute Finland, Luke	Finland
LA	Toshiya Okuro	University of Tokyo	Japan

LA	Vivek Saxena	Government of Haryana, India	India
LA 2b	Alou Adamou Didier Tidjani	Université Abdou Moumouni	Observatoire du Sahara et du Sahel (OSS)
LA 2b	Danielson Kisanga	University of Dar es Salaam,	United Republic of Tanzania
LA 2b	Isbell Forest	University of Minnesota	United States of America
LA 2b	Linda Broadhurst	CSIRO	Australia
LA 2b	P.C. Abhilash	Banaras Hindu University	India
LA 2b	Ricardo Ribeiro Rodrigues	Agriculture School-ESALQ - University of Sao Paulo	Brazil
LA 2b	Violaine Brochier	Electricity of France (EDF), Research and Development	France
Fellow	Marina Monteiro	Universidade Federal de Goiás	Universidade Federal de Goiás

#### Chapter 4: Status and trends of land degradation and restoration and associated changes in biodiversity and ecosystem functions

CLA	Fengchun Zhang	Chinese Research Academy of Environmental Sciences	China
CLA	Stephen Prince	University of Maryland	United Nations Convention to Combat Desertification (UNCCD)
CLA & Liaison Expert	Graham Von Maltitz	Council for Scientific and Industrial Research (CSIR)	United Nations Convention to Combat Desertification (UNCCD)
LA	Ayten Namli	Ankara University	Turkey
LA	Gil Eshel	Soil Erosion Research Station, Ministry Of Agriculture & Rural Development, Israel	Israel
LA 2b	Cristina Martínez-Garza	University of the State of Morelos	Mexico
LA 2b	Kenneth Byrne	University of Limerick	Ireland
LA 2b	Mongi Sghaier	Institut des Régions Arides	Observatoire du Sahara et du Sahel (OSS)
LA 2b	San Thwin	Director General Ministry of Environmental Conservation and Forestry	Myanmar
LA 2b	Yowhan Son	Korea University	Republic of Korea
Liaison Expert	German Kust	Moscow Lomonosov State University, Soil Science Faculty	Russian Federation
Liaison Expert	Jean Paul Metzger	Department of Ecology University of Sao Paolo	Brazil
Fellow	Bernard Nuoleyeng Baatuwue	University for Development Studies	University for Development Studies

#### Chapter 5: Land degradation and restoration associated with changes in ecosystem services and functions, and human well-being and good quality of life

CLA	Barend Erasmus	University of the Witwatersrand	South Africa
CLA	Matthew Potts	UC Berkeley	University of California, Berkeley
LA	Andrew Lowe	University of Adelaide	Terrestrial Ecosystem Research Network
LA	Eliška Krkoška Lorencová	Global Change Research Centre, Academy of Sciences of the Czech Republic	Academy of Sciences of the Czech Republic
LA	Sebastian Arnhold	University of Bayreuth	Germany
LA 2b	Céline Yolande Koffie Épouse Bikpo	Université Félix Houphouët Boigny de Cocody Abidjan	Côte d'Ivoire
LA 2b	Sandra Verónica Acebey Quiroga	YPFB Petroandina S.A.M.	Bolivia

LA 2b	Mustafa Riza Canga	Ankara University	Turkey
LA 2b	Peter Elias	University of Lagos	International Social Science Council (ISSC)
LA 2b	Robin Duponnois	Institut de Recherche pour le Développement (IRD)	France
LA 2b	Chuluun Togtohyun	National University of Mongolia	Mongolia
Liaison Expert	Maria Siobhan Fennessy	Kenyon College	Ramsar Convention Secretariat
Liaison Expert	Soojin Park	Seoul National University	Republic of Korea
Fellow	María Cecilia Rubio	Argentine Institute for Arid Land Research (IADIZA)	National Council for Scientific and Technical Research (CONICET)
RE	Ephraim Nkonya	International Food Policy Research Institute	Tanzania
<b>Chapter 6: Responses to avoid land degradation and restore degraded land</b>			
CLA	Ram Pandit	University of Western Australia	Nepal
CLA	Jim Harris	Cranfield University	United Kingdom of Great Britain and Northern Ireland
LA	Şükran Şahin	Ankara University	Turkey
LA	Ádám Kertész	Hungarian Academy of Sciences	Hungary
LA	Daniel Vieira	Embrapa (Brazilian Agricultural Research Corporation)	Brazil
LA 2b	Cristóbal Félix Diaz Morejón	Ministry of Science, Technology and the Environment	Cuba
LA 2b	Phumza Ntshotsho	Council for Scientific and Industrial Research (CSIR)	Council for Scientific and Industrial Research
LA 2b	Yaakov Anker	Samaria and the Jordan Rift R&D center	Samaria and the Jordan Rift R&D center
Liaison Expert	Noraini Mohd. Tamin	Institute of Ocean and Earth Sciences	Malaysia
Fellow	Ruishan Chen	East China Normal University	Hohai University
RE	Susan Galatowitsch	University of Minnesota	United States of America
<b>Chapter 7: Scenarios of land degradation and restoration</b>			
CLA	Michael Obersteiner	International Institute for Applied Systems Analysis (IIASA)	Austria
CLA	Ben Ten Brink	PBL-Netherlands Environmental Assessment Agency	Netherlands
LA	Aletta Bonn	Helmholtz Center for Environmental Research – UFZ	Germany
LA	Ana Mendes	University of Évora	Portugal
LA	Joe Morris	Cranfield University	United Kingdom of Great Britain and Northern Ireland
LA	Jonathan Davies	International Union for Conservation of Nature (IUCN)	International Union for Conservation of Nature (IUCN)
LA	Miguel Fernandez	German Centre for Integrative Biodiversity Research	German Centre for Integrative Biodiversity Research
LA 2b	Matthew Cantele	International Institute for Applied Systems Analysis (IIASA)	Italy
LA 2b	Jorge Alfredo Herrera Silveira	CINVESTAV-IPN	Mexico
LA 2b	Klaus Kellner	North West University	South Africa
LA 2b	Olusegun Yerokun	Mulungushi University	Zambia



LA 2b	Sinkyu Kang	Kangwon National University	Republic of Korea
LA 2b	Wilson Ramirez Hernandez	Alexander von Humboldt Institute	Instituto Alexander von Humboldt
Fellow	Vanessa Marie Adams	University of Queensland, School of Biological Sciences	University of Queensland
<b>Chapter 8: Decision support to address land degradation and support restoration of degraded land</b>			
CLA	Grace Nangendo	Wildlife Conservation Society	Uganda
CLA	Louise Willemen	ITC University of Twente	Netherlands
LA	Afshin Akhtar Khavari	Griffith University	Australia
LA	David Douterlungne	CONACyT and IPICyT	Mexico
LA	Nana Bolashvili	Ivane Javakhishvili Tbilisi State University	Georgia
LA	Prasanta Mishra	Indian Institute of Soil and Water Conservation (IISWC)	India
LA	Lindsay Stringer	University of Leeds	United Kingdom of Great Britain and Northern Ireland
LA 2b	Jayne Belnap	U.S. Geological Survey	United States of America
LA 2b	Ravshankar Thupalli	Arty Environmental Solutions	India
LA 2b	Ulf Molau	University of Gothenburg	Sweden
Liaison Expert	Mekuria Argaw Denboba	Addis Ababa University	Ethiopia
Fellow	Sugeng Budiharta	Indonesian Institute of Sciences	Indonesian Institute of Sciences
RE	Pedro Brancalion	University of Sao Paolo	Brazil

## Annex III

### Chapter summaries and outline for the thematic assessment on land degradation and restoration

*The following section includes a list of the chapters of the assessment with the description of its content, as approved by the Plenary in annex VIII to decision IPBES-3/1, and the list of the sub-sections developed by experts during the first authors meeting.*

**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.

#### Executive Summary

##### 1.0 Introduction

##### 1.1 Scope

1.1.1 Why undertake the Assessment?

1.1.2 Who requested the Assessment?

1.1.3 How is it different and new?

- Inclusion of ILK, biodiversity and ecosystem services

1.1.4 How was the Assessment undertaken?

1.1.5 Conceptual Framework and its use within the Assessment

- Definitions of degraded land, land degradation restoration and rehabilitation, policy

1.1.6 Geographic scale of the Assessment

##### 1.2 Success - Interactions between Restoration and Policy

1.2.1 What is success? Framed as restoration and arrested degradation

1.2.2 Incorporate social, ecological and economic factors

1.2.3 Identify criteria which will be used to define success incorporating findings from Chapters 2-8

##### 1.3 Success Stories - Highlighting benefits to people from avoidance of land degradation restoration of degraded land

1.2.1 Success stories identified

1.2.2 Outline each success story

1.2.3 Success stories style

1.2.4 Insights from success stories linked to IPBES conceptual framework

##### 1.4 References

**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.

#### Executive Summary

2.0 Conceptual framework: hypothesis: to address land degradation and restoration, taking into account upstream perceptions

2.1 Linking worldviews to impacts: showcases

2.2 Perceptions of land degradation and restoration

2.2.0 Synthesis (key findings)

- 2.2.1 Scientific perceptions of land degradation and restoration and approaches to assess it
- 2.2.2 Legal perceptions and approaches to assess land degradation and restoration
- 2.2.3 Indigenous and Local perceptions and approaches to assess
- 2.2.4 Policy makers
- 2.3. Connecting perceptions of land degradation and restoration with quality of life to facilitate restoration: addressing perceptions is also a way of addressing land degradation and restoration issues
  - 2.3.1 Perceptions of impact of degradation and restoration on nature's benefits to people and human well-being.
  - 2.3.2 Considering/ working with perceptions as a policy supporting tool (aiming at avoiding land degradation, or at rehabilitating, or restoring, degraded lands)

**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.

#### Executive Summary

- 3.1 Purpose and value of chapter
- 3.2 Defining drivers of degradation and restoration
- 3.3 Direct drivers of degradation and restoration
- 3.4 Climate change as a threat multiplier of degradation drivers
- 3.5 Indirect drivers
- 3.6 Food security through tackling land degradation (theme box)

**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.

#### Executive Summary

- 4.1 Introduction
- 4.2 Previous studies of the status of land degradation

- 4.3 Degradation and Restoration Processes
  - a) Soil degradation
  - b) Changes on water regimes
  - c) Landscape changes
  - d) Species composition changes
  - e) Climate “feedbacks”
  - f) Degradation Descriptors (status and trends)
- 4.4 Status of major global ecosystems
- 4.5 Executive summary
- 4.6 References

**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.

#### Executive Summary

- 5.1 Introduction: Quality of life, well-being and world views
- 5.2 Drivers of land degradation and restoration, and Nature's benefits
- 5.3 Drivers of land degradation and restoration, and quality of life?
- 5.4 Case studies
- 5.5 The way forward
- 5.6 Food security box
- 5.7 Figure: Conceptual diagram of framing
- 5.8 Summary and trends of drivers vs. benefits and drivers vs. quality of life (tables)
- 5.9 References

**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.

## Executive Summary

- 6.1 Introduction: key concepts and a brief guide to chapter
- 6.2 Developing response framework
  - 6.2.1 Typology of responses and interventions
  - 6.2.2 The Framework
 

*Criteria*

    - Social
    - Cultural
    - Economic
    - Political
    - Financial
    - Technical/ Biophysical
    - Legal/institutional
- 6.3 Assessment of responses: Using the multidimensional framework. Available responses to degradation processes, and direct and indirect drivers will be critically examined for their effectiveness to:
  - 6.3.1 Response options addressing degradation processes
  - 6.3.2 Response options to address direct drivers
  - 6.3.3 Response options to address indirect drivers
  - 6.3.5 Effectiveness of preventive vs. mitigating response options
- 6.4 Assessment of response mechanisms
  - 6.4.1 Institutional, policy, and governance responses
  - 6.4.2 Effectiveness of addressing indirect causes of land degradation and restoration (institutional, policy, governance) compared with efforts to address direct drivers or anthropogenic assets
  - 6.4.3 Success or failure of different institutional, governance, and management responses
- 6.5 References

**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.

## Executive Summary

- 7.1 Introduction
- 7.2 Previous & contemporary parallel scenario processes
  - a) Over/review of similar other scenario exercises
  - b) Use of scenarios related to policy targets: Aichi, Sustainable Development Goals, Kyoto Protocol, Land Degradation Neutrality
  - c) Insights Expert Group on scenario analysis and modeling

- 7.3 Scenarios of global land degradation
  - a) Stock-taking of global scenarios
  - b) Scenario results by theme
  - c) Overall conclusions Global scenarios
- 7.4 Scenarios of local land degradation
  - a) Stock-taking of local scenarios
  - b) Results local scenarios
  - c) Conclusion local scenarios
- 7.5 Using scenarios to guide development paths
  - a) Overarching messages from scenarios
  - b) Conclusions on the use of scenarios in general
  - c) Way forward for better scenarios
  - d) Uncertainty in scenarios / what is good enough
- 7.6 References

**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.

#### Executive Summary

- 8.1 Introduction
- 8.2 Information to support decision-making making strategies for land degradation and restoration
  - 8.2.1 Information, knowledge and decision -making tools available to identify land degradation problems
    - 8.2.1.1 Information, knowledge and decision support tool (IKT) needs
    - 8.2.1.2 IKT to identify current land degradation (severity, extent, urgency)
    - 8.2.1.3 IKT to identify future land degradation (severity, extent, risk based on scenario)
  - 8.2.2 Information, knowledge and decision support tools available to identify restoration solutions
    - 8.2.2.1 Biophysical/technical options (limitations)
    - 8.2.2.2 Economic viable options (cost of actions and inaction/opportunity costs, financing mechanisms)
    - 8.2.2.3 Institutional/Social options (legal, customary, equity/conflict)
  - 8.2.3 Linking tools to support the whole land degradation and restoration decision making process
    - 8.2.3.1 From agenda setting to planning and design
    - 8.2.3.2 From planning and design to implementation and management
    - 8.2.3.3 From implementation and management to evaluation and adaptation

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- 8.3 Building institutional competencies
    - 8.3.1 Identify and prioritize enabling conditions for land degradation and restoration strategies, and assess actions necessary to achieve them
      - 8.3.1.1 Legal and regulatory instruments
      - 8.3.1.2 Rights-based instruments and customary norms
    - 8.3.2 Economic and financial instruments
    - 8.3.3 Social and cultural instruments
    - 8.3.4 Science and technological instruments
  - 8.4 Interaction among land degradation and restoration decisions and other policy areas
    - 8.4.1 Performance measures/indicators to evaluate the synergies and trade-offs between land degradation and restoration strategies and other policy areas
    - 8.4.2 Interactions between land degradation and restoration decisions and other policy responses
    - 8.4.3 Identify and prioritize responses to minimize trade-offs and/or maximize synergies address land degradation and/or develop restoration
  - 8.5 References

## Annex IV

### Annotated timeline for the thematic assessment on land degradation and restoration

<i>Time frame</i>	<i>Actions and institutional arrangements</i>
<b>2015</b>	
First quarter	Plenary at its third session approves the undertaking of a thematic assessment on land degradation and restoration, 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
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 Meeting of the Management Committee (co-chairs, the technical support unit, and MEP/Bureau members) to select remaining expert team and assign roles (i.e., coordinating lead authors, lead authors and review editors)
Third quarter	First author meeting, including co-chairs, coordinating lead authors, liaison experts, lead authors, and young fellows (Bonn, Germany)
Fourth quarter	Elaboration of zero order draft by experts
<b>2016</b>	
First / early second quarter	Internal reviews and continuation of the preparation of the draft toward the First Order Draft by experts
Second quarter	Parallel First Order Draft review by experts of all four regional/subregional assessments and the land degradation and restoration assessment
Third quarter	Joint second author meeting between the experts of the regional/subregional assessments and the land degradation and restoration assessment (including co-chairs, coordinating lead authors, liaison experts, and review editors)
Third/ Fourth quarter	Second drafts of chapters and first draft of summary for policymakers in preparation towards the Second Order Draft review by Governments and experts
<b>2017</b>	
First quarter/ early Second quarter	Internal reviews and continuation of the preparation of the second drafts of chapters and first draft of summary for policymakers towards the Second Order Draft review by Governments and experts
Second quarter	Parallel second review by governments and experts of Second Order Draft and first draft of summary for policymakers of all four regional/subregional assessments and the land degradation and restoration assessment
Third quarter	Third author meeting, including co-chairs, coordinating lead authors, liaison experts, lead authors, young fellows, and review editors
Fourth quarter	Final text changes to the assessment and the summary for policymakers
<b>2018</b>	
First quarter	Translation of the summary for policymakers into the six official languages of the United Nations Submission of the assessment, including the translated summary for policymakers, to Governments for final review prior to Plenary
Second quarter	IPBES-6 presentation of the summary for policymakers (for approval) and of the technical report (for acceptance) to Plenary Outreach and communication