

External review of the second order draft of the land degradation and restoration assessment

1 May - 26 June 2017

Chapter 6

Reviewer Name	Chapter / SPM	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	Response (from Chapter 6)
Astrid Hilgers	Ch. 6	General				Landscape perspective is missing. A lot of solutions are technical, field level examples. While the institutional measures are on a national level. Need to differentiate more explicitly between levels, the dynamics between these levels. And include landscape / watershed level approaches to restoration.	Landscape level response perspective is addressed in two ways: specific focus on protected areas in section 6.4.2.5 and landscape approach (spatial planning) as an integrated responses in section 6.4.3. Agree that the institutional responses are at national level, how they interact with local contexts are captured through examples in the technical texts and case studies in the chapter
Astrid Hilgers	Ch. 6	General				More information is needed on restoration priorities, objectives and trade-offs both in terms of functions and priority areas -> e.g. water availability, biodiversity or agri production? They often contrast especially on the short term. "Ecosystem services: From eye-opening metaphor to complexity blinder" (Norgaard 2010), "Political science and ecological restoration" (Baker et al 2014), "Priority setting for scaling-up tropical forest restoration projects: Early lessons from the Atlantic Forest Restoration Pact" (Melo et al 2013);	Thank you for suggesting relevant citations. The Landscape concept was incorporated into section 6.3.1.1 and 6.4.3. Issues associated with Conservation Agriculture are also addressed in this revised version in section 6.3.1.1. The work of Melo et al (2013) has been already incorporated in the chapter (section 6.3.1.1 and 6.3.1.2); the essence of Norgaard (2010) and Baker et al (2014) are captured in framing the [restoration response needs] in section 6.3.1.1. Given the direct responses to LDR are discussed by landuse types and key drivers in the chapter, the functions and priority areas are captured within that contexts
Mahmood Yekeh Yazdandoost	Ch. 6	General				For combating poverty-hunger and promoting health, land restoration approaches would be required;	The comment tend to suggest the need for land restoration. Response types and their effectiveness relating to soil health is addressed in section 6.3.2.3 and urban land degradation that have public health benefits is addressed in section 6.3.1.4.
Mahmood Yekeh Yazdandoost	Ch. 6	General				Conservation strategy should gain the maximum services obtained from land restoration;	Not sure whether the comment relates to how land restoration affected (positively) conservation strategies. But restoration responses having implications on conservation strategies are incorporated in sections 6.4.2.5 (protected areas as a response), 6.3.2.1 (responses to invasive species), 6.3.2.2 (responses to mineral extraction), and 6.4.2.3 (economic and financial instruments - PES and offsets).
Mahmood Yekeh Yazdandoost	Ch. 6	General				The development of comparable tools to promote inter-sectoral cooperation is needed;	This comment relates to Tools, which is outside the scope of the Chapter 6 and is instead treated in Chapter 8 (as per the scope of the chapter).
Mahmood Yekeh Yazdandoost	Ch. 6	General				Precautionary policy linkages between land, natural resources and biodiversity is needed;	"Mitigation-hierarchy" as a way of deciding and implementing biodiversity offsets is discussed in section 6.4.2.3 (Economic and financial instruments). Protected area as a response can also be viewed as precautionary approach which is discussed in section 6.4.2.5.
Mahmood Yekeh Yazdandoost	Ch. 6	General				Land-health-development linkages is needed;	The chapter is about responses and their effectiveness but not about human impacts (health or development) of land degradation directly which is more of a topic of chapter 5. The responses related to soil health is discussed in section 6.3.2.3 (responses to soil quality changes). Similarly, responses that have beneficial health outcomes from addressing urban land degradation is discussed in section 6.3.1.4 (responses to urban land degradation).
Mahmood Yekeh Yazdandoost	Ch. 6	General				Most-effective communication channels required; and	Comment is not very specific. It may pertain to anthropogenic assets which is discussed in section 6.4.4 (responses based on research and technology development) and in section 6.5 (knowledge gaps and research needs).
Mahmood Yekeh Yazdandoost	Ch. 6	General				Enabling environment for sharing technologies required	It is discussed in section 6.4.4 as information access.
Mahmood Yekeh Yazdandoost	Ch. 6	General				Suggesting this chapter to focus more precisely on ecological footprint and biocapacity relationship.	Ecological Foot Print and Biocapacity are impacts of land degradation. Which are covered in earlier chapters (3 and 5, in particular). The relationship between ecological footprint and biocapacity as a result is restoration response is logical. But difficult to track.

Juan Comerma	Ch. 6	General				I would add among the sustainable land management techniques the Voluntary Guidelines for sustainable soil management, recently published by the ITPS.	Thank you. This was added
Marcus Zisenis	Ch. 6	General				As already mentioned in the text: Community property and local management of land for different land use seems to be a key tool to prevent ecosystem deterioration such as ecological farming in a competitive open market of certified products. However, key conditions of a future global market should be pointed out of the currently widely unlimited globalization market without sufficient social and environmental quality standards (e.g. WTO, TTIP, CETA).	The community property and local land management is discussed in section 6.4.2.4 (social and cultural instrument). The comment on current form of globalization that needs to incorporate social and environmental standards is incorporated in section 6.4.1 (responses to indirect drivers).
Sandhya Chandrasekharan	Ch. 6	General				organic farming is mentioned but would the transition through "certified safe" levels of chemical inputs be a more realistic option for some countries?	Agree.
Sandhya Chandrasekharan	Ch. 6	General				also just a general question about "Biological control" on invasives. My understanding is that the absence of natural predators/ a place for them in the food chain is what makes them invasive in the first place. So, while the land degradation assessment cannot devote too much space to it, it would be good to have some examples if possible on biological control.	Biological control is discussed with numerous citations as one of the responses to invasive alien species in section 6.3.2.1.
Esther Turnhout	Ch. 6	General				Perhaps this is done elsewhere in the chapter, but in general there are many policy responses that contribute to and exacerbate land degradation (including agricultural subsidies and trade agreements. This can be better reflected in the text.	Agricultural subsidy as a response is discussed with example in section 6.4.2.3 (economic and financial instrument). Responses to globalization and trade as indirect drivers of land degradation is captured in section 6.4.1. However, detailed discussion on these drivers is available in chapter 3.
Germany	Ch. 6	General				Chapter 6 describes various important response options. It would be useful, if these are listed/summarised in a table.	Appreciate the suggestion. A listing of various response options and their effectiveness is incorporated into the text as summary in tables at the end of sections 6.3.1 and 6.3.2. This approach is chosen to save space.
Germany	Ch. 6	General				Clarification needed: As the terms "sustainable land use" and "sustainable land management" are being used, it is important to know, whether the terms are being used interchangeably or whether they are meant to define different measures?	"Sustainable land use" and "sustainable land management" have been used interchangeably. Agree that these terms can be used to refer to slightly different concepts. According to UN FAO sustainable land management (SLM) is defined as "the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions" (UN FAO: http://www.fao.org/land-water/land/sustainable-land-management/en/). Whereas based on sustainability criteria with a focus on multifunctionality of the land at a global scale, "sustainable land use" is defined as the land use that serves the needs (for food, energy, housing, recreation etc.) of all human beings living on earth today and in the future, respecting the boundaries and the resilience of ecological systems (source: http://ecologic.eu/sites/files/publication/2014/globalands-discussion-paper-sustainable-landuse.pdf).
Ingrid Hartmann	Ch. 6	General				The question is, why in this chapter so many single measures are mentioned at all, would it not be sufficient to refer to WOCAT?	The reference to various land restoration measures discussed in WOCAT is made explicit in section 6.2.1 (response typology and response options), and also relevant information from WOCAT is incorporated in sections 6.3.1.1, 6.3.1.2 and 6.3.1.3.
Ingrid Hartmann	Ch. 6	General				Then the „control by use“ concept is not mentioned in the chapter. There is also no concept presented, when, and under which conditions, invasive species could be tolerated or integrated into landscape management and vice versa: under which conditions can introduced exotic species become invasive, and how is this prevented?	Agree with the comments. The concept of 'control use' of invasive species is captured within the description of 'cultural practices' in section 6.3.2.1. Additionally, managing invasive species following 'ecosystem-based approach' has been emphasized along with local knowledge in section 6.3.2.1.

Ingrid Hartmann	Ch. 6	General				The chapter would benefit, if it would include landscape approaches as a means to address land degradation. For instance the Great Green Wall Initiative could be mentioned, as one unique effort to establish a mosaic of climate resilient landscapes.	Thank you for the comment. Landscape approach as a response to land degradation is incorporated in final draft under sections 6.3.1.1, 6.3.1.2, and 6.4.3.
UNCCD SPI	Ch. 6	General				This chapter covers the basics of responses fairly clearly, though it appears to confuse "institutions" with "organisations".	The text has been revised to avoid confusion by indicating only institutions (not organisations) in section 6.4.5.
Steve Prince	Ch. 6	General				I realize that "Responses to halt land degradation and to restore degraded land" i.e. this chapter (6) may need some brief introduction on the process which could be halted and restored and on their current status and trends. However, these are the topics that, on the basis of the LDRA Scoping, are supposed to be covered in Ch. 3 and 4. For example, some of the content of Sections 6.3 includes some text that is in Ch.4. On the other hand, Section 6.4 is what I expected. We need to decide whether materials should be rearranged to try to keep the Scoping structure i.e. human drivers and process (Ch.3) and current prevalence, severity and expected future (Status and trends) Ch. 4. I am cautious about suggesting rearrangement between chapters because this Chapter is, in my opinion, very good in content and style. So maybe adding citations to Ch. 4 sections where the topics are also dealt with would be enough. Overall I found this to be interesting, relevant and well presented. My comments mostly refer to details on which I have some knowledge or simple errors, plus some references to duplicated materials in other chapters (but far from comprehensive)	Thanks to the reviewer to streamline the texts among chapters. In line with this comment, chapter contents were reviewed during Third Author Meeting in Rome (July 2017) and relevant texts were placed in respective chapter following the chapter scopes. In addition, cross-referencing with relevant content of other chapters has been made in the revised final draft.
Karen Holl	Ch. 6	General				Generally, I agreed with most of the point in Chapter 6, but it was quite long and overall organization was hard to follow. There was detailed discussion of some types of ecosystems (e.g. rangeland management and wetlands) whereas others weren't covered at all.	The chapter contents has been reviewed during Third Author Meeting to develop a better structure and flow of the texts. In line of the reviewers' comments, new sections were incorporated in the final draft (sections 6.3.1.6 protected areas as a response; 6.3.2.2 responses to mineral extraction; and 6.4.3 landscape approach as a response). In addition, other sections were further enriched in particular 6.3.1.1 (crop land degradation responses) by covering integrated crop-livestock and forestry practices, 6.3.2.3 (responses to soil quality changes) and 6.4.1 (responses to indirect drivers - globalization, demographic change, and migration).
Miguel Taboada	Ch. 6	General				Integrated crop-livestock systems are another possible response for restoring land degradation in croplands. There are a list of successful examples in North America, Western Europe, Brazil, Uruguay and Argentina. See: • Franzluebbers, A.J., Sawchik, J., Taboada, M.A. 2014. Agronomic and environmental impacts of pasture-crop rotations in temperate North and South America. Agriculture, Ecosystems and Environment 190, 18-26. • Peyraud, J-L., Taboada, M.A., Delaby, L. 2014. Integrated crop and livestock systems in Western Europe and South America: A review. European Journal of Agronomy 57, 31-42.	Suggested references are used and main messages have been incorporated in section 6.3.1.1 (Responses to cropland degradation). Information regarding integrated crop livestock (ICL) and integrated crop livestock and forestry (ILCF) systems has also been incorporated into revised section 6.3.1.1.
Javier Ernesto Cortés Suárez	Ch. 6	1	2	1	3	These title should focused more on manage land degradation rather than stopping it, taking into account that not in all places around the world this could be achieved completely. Although this would be the ideal state for all degraded places globally.	The title of the chapter has been decided by the scoping (guiding) document. We can not change it.
Markus Giger	Ch. 6	4	65	6	164	The executive summary, in accordance to the main text, does not discuss problems related to dominant economic drivers at international level and the weakness of global governance as a root cause of many land degradation processes. See my comment related to page 54.	Responses to dominant economic drivers - trade/globalization is incorporated in the key messages in the final draft.

Astrid Hilgers	Ch. 6		77		88	the relation between sustainable implementation of restoration options, downscaling and upscaling and enabling condition mechanisms are not specified. Need for synthesis.	Chapter six has focused on local and national level responses, which has been dealt for several restoration options. Decision making tools/contextes that have national to global scope have been addressed in chapter 8. The issue of upscaling and downscaling is not explicitly dealt within this chapter, but considered through local to national scale responses.
UNCCD SPI	Ch. 6	4	87	4	87	"s" is missing with "context"	Corrected.
Astrid Hilgers	Ch. 6		89			cost-effect for whom? Depends on the stakeholder (policy maker vs farmer) and on which timescale? (short or long term benefits)	The message is modified and the confusion clarified.
UNCCD SPI (Nathalie van Haren)	Ch. 6	4	93	4	95	In the list of responses to land degradation, agroecology is not taken up, while it is recognised as sustainable agriculture by FAO http://www.fao.org/agroecology/overview/en/ ; Agroecology-based aggradation-conservation agriculture (ABACO): Targeting innovations to combat soil degradation and food insecurity in semi-arid Africa (2012) P. Tittonell et al http://www.sciencedirect.com/science/article/pii/S0378429011004151 . Replace "conservation agriculture, agroforestry practices" with "agroecology, agroforestry, conservation agriculture, adaptation of sustainable agricultural practices" in line with page 11 line 287	Corrected as suggested.
UNCCD SPI (Nathalie van Haren)	Ch. 6	4	93	79	2396	BIAS: This section is biased towards Conservation Agriculture, a term that is often used by the agri-chemical industry as an answer to unsustainable agriculture that is highly agri-chemicals dependent. In the list of responses to land degradation, agroecology is not taken up, while it is recognised as sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 Towards alternative paradigms. In chapter 6 agroecology and other sustainable practices are recognised. Other sources also recognise agroecology as a sustainable alternative to unsustainable agriculture by FAO http://www.fao.org/agroecology/overview/en/ ; and as a response to soil degradation, see for instance Agroecology-based aggradation-conservation agriculture (ABACO): Targeting innovations to combat soil degradation and food insecurity in semi-arid Africa (2012) P. Tittonell et al http://www.sciencedirect.com/science/article/pii/S0378429011004151	Agro-ecology has been discussed and incorporated as an SLM practice in the executive summary as well as in section 6.3.1.1.
Gardner	Ch. 6	4	95	4	96	Peatlands are wetlands. Rather than saying "Restoring wetlands and peatlands" consider "Restoring wetlands such as peatlands"	Corrected.
Germany	Ch. 6	4	98	4	100	The first sentence should not be bold as it does not refer to a response (title of the chapter).	Corrected.
Astrid Hilgers	Ch. 6	4	98	4	101	By definition, conservation agriculture preserves and enhances the resource base (page 14, line 358), it is therefore automatically an effective way to use manage soil resources sustainable. The statement therefore does not have any value.	Corrected. The key message has been revised for final draft in line of the comment.
Yujie Wang	Ch. 6	4	98	4	100	There are two "productivity" in this sentence. Please double check.	Corrected.
Astrid Hilgers	Ch. 6		98			what about soils on non-agricultural land? Forests? And polluted sites, There is a strong focus on agriculture in this chapter.	The revised section (6.3.2.2 - responses to soil quality changes)has explicitly dealt with soil quality in other form of land use than agriculture alone. Also the revised key messages have emphasized soil/soil quality in different forms of land use.
Markus Giger	Ch. 6	4	100	4	100	Conservation Agriculture is not a universally defined term - depending on that it can mean also zero-tilling in monoculture (without rotations) with intensive use of herbicides and pesticides- with mixed effect on soil and biodiversity. Refer to FAO definition.	FAO definition has been followed for CA in the main technical texts.

Germany	Ch. 6	4	100	4	102	There is no blueprint solution technology. Especially in the case of conservation agriculture the impact depends highly on its respective interpretation and adaptation to local contexts. Reformulate: Conservation agriculture can be an effective way to use and manage soil resource sustainably.	Corrected.
UNCCD SPI (and Nathalie van Haren)	Ch. 6	4	100	4	102	Replace "conservation agriculture" with "agroecology, agroforestry, conservation agriculture, adaptation of sustainable agricultural practices" in line with page 11 line 287, as the label {Well Established} for the statement "Conservation agriculture is one of the most effective ways to use and manage soil resource sustainably as it has been demonstrated globally as a successful approach" is not correct. Agroecological approach to agriculture is insitric to sustainability as it maintains and restores natural balances. See chapter 2, paragraph 2.3.2.1 Towards alternative paradigms. In chapter 6 agroecology and other sustainable practices are recognised. Other sources also recognise agroecology as a sustainable alternative to unsustainable agriculture by FAO http://www.fao.org/agroecology/overview/en/ ; and as a response to soil degradation, see for instance Agroecology-based aggradation-conservation agriculture (ABACO): Targeting innovations to combat soil degradation and food insecurity in semi-arid Africa (2012) P. Tittonell et al http://www.sciencedirect.com/science/article/pii/S0378429011004151	The key message in the executive summary is revised by incorporating other sustainable land management practices as suggested.
Germany	Ch. 6	4	103	4	103	Could be misunderstood as "in order to ensure...short-term economic gains by overlooking... ", better: "... in order to improve management decisions that consider not only short-term economic gains but also off-site and long-term consequences of their actions."	Corrected.
Astrid Hilgers	Ch. 6		105		113	Sudden switch from global level to national level. Implementation mechanisms and measures differ per level, and thus, enabling conditions do so as well.	The global level responses are now mostly dealt by Chapter 8. Chapter 6 is mainly dealing with national and local level responses. This particular key message is revised to reflect only national or local level responses in the final draft.
Astrid Hilgers	Ch. 6		114		119	again, levels are mixed here. And the landscape approach is missing here. With that, measures that go beyond plot level (e.g. ecological corridors) are absent	Landscape approach as a response is included in final draft (section 6.4.3). The key message is being revised following the discussion in third author meeting. The new key message considers landscape level response with significant emphasis.
Zhao Gengxing	Ch. 6	5	118			The word "salinity " here might be not right.	The referred word is not in the specified line or even the paragraph. No action needed.
Caroline van Leenders	Ch. 6		118			Should be Chapter 7. Financial institutions should know their impacts and dependenciesand invest accordingly.	The context of the comment doesn't match with the text in suggested page and line in Chapter 6 SOD (page 5, line 118). Could have been directed to Chapter 7. However, private institutions and their responses to LDR has been dealt in section 6.4.2.4 under 'corporate social responsibility' sub-section.
UNCCD SPI (Nathalie van Haren)	Ch. 6	5	119	5	199	Replace "conservation agriculture" with "agroecology, agroforestry, conservation agriculture, adaptation of sustainable agricultural practices" in line with page 11 line 287 and FAO:" Agroecology is based on applying ecological concepts and principles to optimize interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system." http://www.fao.org/agroecology/en/	This key message has been revised. Agro-ecology has been discussed and incorporated as an SLM practice in the executive summary as well as in section 6.3.1.1.
Royal Gardner	Ch. 6	5	120	5	121	This key message says very little: "The effectiveness of policy instruments depends on local context and the institutional and governance depends on systems in place." Back in 2005, the MA Wetlands and Water Synthesis stated it a little more strongly: "Good governance and institutions, and the political and legal mandates they provide, underpin the successful implementation of all response options."	The key message has been revised to reflect the comment and make it more explicit.

Astrid Hilgers	Ch. 6		120	5	132	address the tension between intrinsic motivation versus financial penalties / rewards for restoration	The potential of "intrinsic motivation crowding out" from economic incentives is being discussed in section 6.4.3.2.
Markus Giger	Ch. 6	5	125	5		All acronyms need to be written out the first time (PEFC), and further below ILK	Done.
Germany	Ch. 6	5	127	5	128	Not clear, what "from a cultural perspective,...traditional ecological knowledge... is generally effective" means. Effective in which sense? Alternative: The long-term adoption of sustainable land management practices is often higher if they are based on traditional ecological knowledge.	The sentence is amended as suggested.
Yujie Wang	Ch. 6	5	130	5	130	Please define the meaning of "ILK" in Line 130.	Done.
Mahmood Yekeh Yazdandoost	Ch. 6	5	133	5	136	True.	No action needed
Markus Giger	Ch. 6	5	133	5	138	Message of this para not clear. Responses <i>depend</i> ? from the anthropogenic assets available and therefore are spatially concentrated?	The message is modified and the confusion clarified.
UNCCD secretariat	Ch. 6	5	133	5	138	The message is not clear. We think authors want to highlight the uneven distribution across countries of knowledge, capacities and resources to address sustainable land management and restore degraded land. However as it is written the first explanatory statement it could be read that there is not enough knowledge to achieve LDN target. In that sense we want to refer to the scientific conceptual framework developed by the UNCCD-SPI that lay the scientific foundations to achieve this goal. See Orr et al, 2017 Orr, B.J., A.L. Cowie, V.M. Castillo Sanchez, P. Chasek, N.D. Crossman, A. Erlewein, G. Louwagie, M. Maron, G.I. Metternicht, S. Minelli, A.E. Tengberg, S. Walter, and S. Welton. 2017. Scientific Conceptual Framework for Land Degradation Neutrality. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany..	The message is modified and the confusion clarified. Suggested reference has been cited appropriately.
Germany	Ch. 6	5	136	5	136	"the UNCCD land degradation neutrality goal" instead of "...goals"	Corrected.
Liu Jinlong	Ch. 6	5	139	4	143	upscaling is not important issues related to IKL. Restoring and activating IKL is.	Corrected.
Gardner	Ch. 6	6	152	6	155	In addition to the 3 Rio Conventions, the Ramsar Convention should be mentioned.	Ramsar convention is mentioned clearly in the revised final draft. However, the global level responses are dealt in Chapter 8.
Germany	Ch. 6	6	152	6	155	The rationale for simultaneous contribution to SDGs and Rio Conventions does not lie in the common indicator of carbon stocks, but the integrated nature of climate, land and biodiversity factors. Better separate in two sentences: "Effective responses ...and UNCCD." and "The management...three conventions."	This key message along with the relevant technical text is now belong to Chapter 8. The message is corrected and modified to reflect the suggestion.
Liu Jinlong	Ch. 6	6	152		157	REDD+ projects have been on the piloting in quite small scale, which may not have such high impacts in the future.	
Germany	Ch. 6	6	153	6	153	Replace "UNCBD" with CBD	Corrected
Markus Giger	Ch. 6	6	156			REDD+ activities should be reviewed more critically as they can also endanger local livelihoods. Further in the text L2273, you say that the literature contains opposing views.	Agree. The statement is made more balanced now.

UNCCD secretariat	Ch. 6	6	162	6	164	The use of inadequate to refers to the progress on the UNCCD target is incorrect. In 2013 following the recommendations of a group of experts the UNCCD (UNCCD 2013 decision 22/COP.11) adopted and evaluation and assessment framework including indicators for measuring and monitoring the progress toward their strategic objectives. Part of these indicators has been also adopted by more than 100 countries to measure the achievement of national voluntary Land Degradation Neutrality targets. The indicators have been proposed for monitoring target 15.3 of the SDG (see Minelli, S . Erlewin and Castillo V 2016 Land Degradation Neutrality: from political vision to measurable targets. In Ginzky, H., Heuser, I.L., Qin, T., Ruppel, O.C., Wegerdt, P. (Eds.) International Yearbook on Soil Law and Policy 85-104;; IASS-Global Soil Forum 2015: grounding the Post-2015 Development Agenda: Options for the protection of our precious soil and land resources, CBD2016 Decision XIII/28, Orr et al. 2017).	The key message has been revised by providing relevant information to justify the progress made for convention specific targets/goals. The message has also been passed on to Chapter 8 along with the relevant technical texts.
Yujie Wang	Ch. 6	7	176	7	176	Please change "Anthropogenic response" to "Anthropogenic responses".	Done.
Eila Gendig	Ch. 6	7	179		180	Any response should be looking at incorporating all three sources of information if available. Not use the one that is best available	Made that connection explicitly by revising the sentence with the the word "integrated together" at the end.
Sandhya Chandrasekharan	Ch. 6	7	181	7	182	Economically viable for whom? Socially acceptable to which sections of society? Also politically feasible and desirable - but the point is, who is driving a politics for alternate development and not one that is status quoist? I don't know about Green party agendas in early capitalist countries. This might be a relevant discussion to include, ie: HOW does change come about,	Added the phrases 'desirable changes' and 'politically feasible' dimension in the sentence.
Yujie Wang	Ch. 6	7	196	7	197	"Despite a growing knowledge base regarding land degradation drivers, processes, and their impacts on both ecosystem services and quality of human life".I thinks this sentence is incomplete. Please double check.	The second clause in the sentence makes it complete.
Liu Jinlong	Ch. 6	7	205			to avoid use the term of "ecosystem structure"	Kept it as such. It is part of the chapter mandate.
Astrid Hilgers	Ch. 6	9	230	9	230	Figure 6.1: Indeed, response evaluation criteria are scale. However, almost all the elements in the Figure are scale dependent (e.g., drivers, responses). As a result the framework itself is scale dependent..	Figure 6.1 has been extensively revised. Different forms of scale (temporal, spatial, organisational, and decision making) are now part of the figure interacting with responses and response evaluation criteria.
Markus Giger	Ch. 6	9	231			The conceptual framework is interesting and useful.	Thank you.
Germany	Ch. 6	9	231	9	232	The caption of the figure may need to include rehabilitation, reduction and avoidance as well because the responses outlined in Figure 6.1 don't only target "restoration". Please cross-check with the definitions provided in chapter 1.	The revised figure 6.1 has an extended caption that includes prevention, mitigation, and restoration as a part of the response as well as details on response evaluation criteria.
Ingrid Hartmann	Ch. 6	9	231			The relationship between ecosystem services and human well-being is not consistent with the Millennium Ecosystem Framework, from which it is derived. The Millennium Ecosystem Framework shows that ecosystem services directly influence human well-being. The relationship to land degradation is therefore that land degradation affects ecosystem services, and through the impact on ecosystem services human well-being is affected. Therefore the arrow should go from land degradation to ecosystem services, and from ecosystem services to human well-being, not both arrows should go from land degradation to ecosystem services and human well-being.	Thank you for the suggestion. The link between land degradation to human well-being via ecosystem services is made explicit in the revised figure 6.1. The direct effect of land degradation on human well-being is also kept as such inline of the IPBES conceptual framework
Germany	Ch. 6	9	231			The wording in the left box titled "Nature's benefit to people (ecosystem services)" may have to be adjusted according to the decision provided in Decision IPBES-5/1 that reads: " <i>nature's contributions to people</i> ".	The figure 1 has been updated inline of the Decision IPBES-5/1, i.e. nature's benefit to people is replaced by nature's contributions to people.

Karen Holl	Ch. 6	9	231	9		I found Figure 6.1 hard to follow and it did not help in clarifying how to “evaluate the effectiveness of land degradation and restoration responses” It seemed like a lot of jargon was put on a single figure with a lot of arrows. Perhaps a more extensive legend would help the reader to gain something from the figure.	The figure has been simplified and extended figure caption is provided to explain the figure.
UNCCD secretariat	Ch. 6	9	235	10	264	The UNCCD would like to see a more updated and relevant source information on the LDN. That is the acknowledged ‘Scientific Framework for Land Degradation Neutrality’, that under the supervision of the SPI have been developed by a group of scientists and subjected to external peer review. This framework is currently adopted in close to 100 countries endeavouring to set SDG target 15.3(Orr et al, 2017 Orr, B.J., A.L. Cowie, V.M. Castillo Sanchez, P. Chasek, N.D. Crossman, A. Erlewein, G. Louwagie, M. Maron, G.I. Metternicht, S. Minelli, A.E. Tengberg, S. Walter, and S. Welton. 2017. Scientific Conceptual Framework for Land Degradation Neutrality. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany. http://www2.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality .)	The most recent UNCCD work on LDN has been cited as suggested.
Markus Giger	Ch. 6	9	237			I was not able to access this source. The mitigation hierarchy should be referenced. In other parts of the text you do not mention off-set anymore. I think this would be important to be consistent.	The most recent work from UNCCD that introduces the concept of mitigation hierarchy is in the conceptual framework for land degradation neutrality (LDN) has been cited as a source for mitigation hierarchy. The offset as a response is discussed in section 6.4.2.3.
Karen Holl	Ch. 6	9	244		245	The authors use the standard definition of restoration that was put forward by the Society for Ecological Restoration. However, in chapter 1 the authors define “restoration” slightly differently. It seems like a single definition should be used throughout the document and that it should be the definition of SER for consistency.	The chapters now consider the definitions used to align them for the assessment. A unified definition is being used in the document.
Virginia Meléndez Ramírez	Ch. 6	9	246	9	246	you can add <i>see 319 for example of payment for ecosystem services</i>	Payment for ecosystem service is discussed extensively in the chapter within section 6.4.2.3 (economic and financial instrument). In this sentence only the higher level responses are listed.
Ingrid Hartmann	Ch. 6	10	248		280	further below, SLM, soil and water conservation cannot clearly distinguished as many measures are interrelated, therefore rather „SLM including soil and water conservation“ should be mentioned.	Incorporated where relevant.
Ingrid Hartmann	Ch. 6	10	248		280	Right-based approaches in my view would be rather enabling than instrumental.	All indirect responses are placed within a broad heading 'enabling and instrumental' responses to avoid potential confusion.
UNCCD SPI	Ch. 6	10	250	10	264	The SPI notes that chapter 6 of the LDRA deals with responses to halt land degradation and to restore degraded land. This chapter contains references to Land Degradation Neutrality (LDN) and it uses a IUCN graphic of the response hierarchy. The SPI strongly recommends authors to replace this source, and use the widely acknowledged ‘Scientific Framework for Land Degradation Neutrality’, developed by members of the SPI and currently adopted in close to 100 countries endeavouring to set SDG target 15.3 http://www2.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality . As this chapter lays the foundations for a statements made in the SPM on achieving Land Degradation Neutrality, it needs to be based on credible, peer-reviewed scientific sources	Agree. The figure 2 has been extensively revised. It is now based on LDN framework as suggested and cited in the final draft, but goes beyond neutrality.
Javier Ernesto Cortés Suárez	Ch. 6	10	254	10	255	These should also include restoration conceptual at a forest landscape scale, which refers to a planned process that aims to restore ecological integrity and improve human well-being in deforested landscapes.	The standard definition of restoration is provided here. It should apply to different land use context including forested landscape.
Markus Giger	Ch. 6	10	263			Figure 6.2. : this figure does not refer to off-set, whereas according to the text it would need to refer to it.	The comment is well taken. In the revised figure 2, offset is specifically indicated for the LDN scenario (fig 2, column 3).

Astrid Hilgers	Ch. 6	10	263	10	263	Figure 6.2: Although I agree with the Figure, there is one element that is not incorporated As soon as we move from a natural ecosystem towards an agricultural system, soil properties will change. In many case we will experience a decline in e.g., SOM. These changes are unavoidable and directly to the change in use. The figure, however, suggests that we always have to go back to the natural conditions, which is basically impossible due to the change in function/land use	Agree. The figure 2 has been extensively revised. It is now based on land cover types of various forms that are specifically dealt in the chapter. The extended description of land cover type is provided in an additional table which implicitly captures the fine details under "transformed land" that are difficult to highlight in the figure itself including soil properties (SOM).
Emmanuelle Quillérou	Ch. 6	10	268	10	268	MEA refers to multi-lateral environmental agreements. The official acronym for the Millenium Ecosystem Assessment is MA. I would remove the acronym and replace it by its full name though.	Corrected.
Gardner	Ch. 6	10	268	10	272	This sentence is very difficult to understand.	Simplified.
Markus Giger	Ch. 6	11	281			Reference to to the various publications of WOCAT and the LADA project would be needed. For instance Linger&Critchley, 2007, also reviewed and categorized approaches and technologies. Even if not the same categories are reported here, it should be shown that much work has been done on this.	Thank you for pointing out these references. Suggested citation particularly the edited book by Lingier and Critchley cited as WOCAT (2007), and a review opaper by Thomas (2008) are added.
McAfee, Brenda	Ch. 6	11	287	11	287	As noted in other chapters a definition or a citation for conservation agriculture is needed.	Conservation Agriculture has been defined and discussed in section 6.3.1.1.
Nathalie van Haren	Ch. 6	11	297	11	297	Table: replace "Conservation agriculture, Agroforestry" with: ""agroecology, agroforestry, conservation agriculture, adaptation of sustainable agricultural practices" in line with page 11 line 287	Replaced as suggested.
Royal Gardner	Ch. 6	11	297	11	297	In Table 1, wetland policy options can be expanded to include: PES, renewable energy policies, removal of perverse incentives, tax incentives, eco-labeling, community-based management, etc. See attached first order draft of the respose chapter of the Ramsar Convention's Globa Wetland Outlook: State of the World's Wetlands and their Services to People, for more detail. Please contact me if you wish to cite the GWO.	Agree with the comment. In table 1, the focus is on listing biophysical and technical responses (direct). The commented responses are broadly fall into policy instruments and these have been dealt in section 6.4.2 extensively that are applicable to broad categories of land use including wetlands.
Astrid Hilgers	Ch. 6	11	297	12	297	The table lists a number of policy instruments. This should be harmonized between chapter 6 and chapter 8. The chapter should reflect current IPBES work in policy support tools and a clearer distinction is needed between instruments (which should be in chapter 6 perhaps) and support tools (which belong in chapter 8)	This has been dealt with chapter 8 during the third author meeting. Policy instruments are discussed in Chapter 6 while the policy support tools are dealt in Chapter 8 in the final draft.
Astrid Hilgers	Ch. 6	11	297	12	297	The management strategies seems to be biased away from conventional agriculture. However, mineral fertilizer, irrigation, and pesticides can also be potential strategies to combat land degradation.	These different management strategies are covered in the final draft in sections 6.3.1.1 (cropland) and 6.3.2.3 (soil quality).
Astrid Hilgers	Ch. 6	11	297	12	297	table 6.1: this list needs a context: what is minimally needed to reach what goals? Etc	The table has been modified to make it explicit for direct response options by landuse and degradation driver. It is a template that has been applied to specific responses and their effectiveness in section 6.3.
Astrid Hilgers	Ch. 6	11	297	12	297	table 6.1:these are plot level measures, and national or international institutional mechanisms. Landscape / watershed level approaches are missing! Also, a lot is related to agricultural areas (sustainable agri), and very little to forestry, and other ecosystems.	The landscape/watershed level approaches and their effectiveness are captured in a new section 6.4.3 (landscape approach as a response). The table is a template, which has been applied to forest land, rangeland, wetlands etc. in the main text (sections 6.3.1).
Astrid Hilgers	Ch. 6	11	297	12	297	table 6.1: missing are the big investors. Large investment actors and the possible role they can play. Very valid discussion if you look at Global Landscape Forum or Land, Lives, Peace congres (Caux Dialogues) for instance	The revised chapter considers private investors under 'corporate social responsibility' and 'natural capital accounting' headings within section 6.4.2.3.
Virginia Meléndez Ramírez	Ch. 6	11	297	11	297	Table 6.1 Pest control Invasive plant, insects and other organisms.	The table is just a template, these specific response options have been dealt in relevant section/sections (e.g. control of invasive plant is dealt in section 6.3.2.1).
Virginia Meléndez Ramírez	Ch. 6	11	297	11	297	Table 6.1 Wetland and other ecosystems.	The table is just a template, these specific response options are dealt in relevant section/sections (e.g. Wetland related responses are dealt in section 6.3.1.5).

UNCCD SPI	Ch. 6	11	297	11	297	Table: replace "Conservation agriculture, Agroforestry" with: ""agroecology, agroforestry, conservation agriculture, adaptation of sustainable agricultural practices" in line with page 11 line 287	Corrected.
Ingrid Hartmann	Ch. 6	11	297			Table 6.1. incomplete, particularly on enhancing soil organic carbon, which includes also f. eg. Agroforestry, crop rotation, focussing on crops with dense rooting system, intercropping, minium tillage, etc... The fact that soil organic carbon is mainly influenced by land use and land cover change is not mentioned here nor anywhere else in the chap	The table is just a template, the suggested response options are dealt in section 6.3.1.1 (cropland) and 6.3.2.3 (soil quality). The chages in SOM due to LULC is a driver related issue not responses.
Esther Turnhout	Ch. 6	12	297			The table lists a number of policy instruments. This should be harmonized between chapter 6 and chapter 8. The chapter should reflect current IPBES work in policy support tools and a clearer distinction is needed between instruments (which should be in chapter 6 perhaps) and support tools (which belong in chapter 8)	This has been dealt with chapter 8 during the thrid author meeting. Policy instruments are discussed in Chaper 6 while the policy support tools are dealt in Chapter 8 in the final draft.
Ju Zhengshan	Ch. 6	13	316	13	318	could you rotate the text in 'response evaluation criteria' for easy reading?	Done.
Eila Gendig	Ch. 6	13	316			Table 6.2: Transposing the table would place the text-heavy boxes on teh vertical axis and facilitate readability	Done.
Markus Giger	Ch. 6	13	333			The text should follow the "mitagation" hierarchy that you have stipulated above more closely.	A new column is included in the table to incorporate mitigation hirarchy wherethe response can be grouped into preventive or mitigation or restoration types.
Thomas Brooks	Ch. 6	14	340	14	340	Given the central importance of protected areas as a cross-cutting proactive response to land degradation, I was astonished to find no subsection on PAs in Chapter 6. I strongly recommend addition of a few paragraphs of text on PAs, at least. The introduction to Section 6.3.2 might be the best place to add this. Watson et al. (2014) Nature would be a core reference.	A new section on protected area as a response is incorporated in the final draft in section 6.4.2.5.
Astrid Hilgers	Ch. 6	14	340	54	1517	there are various failures where e.g., agroforestry did not provide an answer either due physical (phosphorus limitations, size of holdings..) or socio-economic constraints (economic, social acceptance).	The section on agroforestry has been extensively revised and success of agrofotestry has been presented with examples. Agree that agroforestry is not always effective.
Astrid Hilgers	Ch. 6	14	340	52		The summary tables per response are extremly usefull, however, the tables should be made consistent (e.g., Table 6.9 (page 30/31) has another format and some of the Sections do not have a table.	Summary tables for responses are now merged together and presented at the end of sections 6.3.1 snf 6.3.2 along with response effectiveness ranking.
Emmanuelle Quillérou	Ch. 6	14	341	21	568	You could add a reference to the paper by Qadir et al below which explores a few options for land rehabilitation and/or mitigation of salt-induced land degradation for agriculture. It has both an agronomic and an economic perspective and shows that it can be cost-effective to take action rather than continue with business as usual (inaction) in a contexte of salt-induced land degradation. Qadir, M., Quillérou, E., Nangia, V., Murtaza, G., Singh, M., Thomas, R.J., Drechsel, P., Noble, A.D. (2014) Economics of Salt-induced Land Degradation and Restoration. Natural Resources Forum, A United Nations Sustainable Development Journal, 38: 282–295.	The suggested reference has been cited in section 6.3.2.3 (sub-section Salinization).
Karen Holl	Ch. 6	14	342		342	delete "very". Isn't necessary.	This section is rewritten for the final draft.
Steve Prince	Ch. 6		342		354	This partly duplicates Ch. 4.	The duplicated text was allocated to specific chapter during the Third Author Meeting in Rome. The issues in addressed in the final draft.
Yujie Wang	Ch. 6	13	344	13	344	"examine how well those responses are working and where". I guess some words is missing here.Please double check.	Added "(i.e., under what geography, socio-economic, and cultural settings) to the bullet point to make the point clearer.

UNCCD SPI (Nathalie van Haren)	Ch. 6	14	354	14	355	Insert here a paragraph on Agroecology, as in the list of responses to land degradation, agroecology is not taken up, while it is recognised as sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 Towards alternative paradigms. In chapter 6 agroecology and other sustainable practices are recognised. Other sources also recognise agroecology as a sustainable alternative to unsustainable agriculture by FAO http://www.fao.org/agroecology/overview/en/ ; and as a response to soil degradation, see for instance Agroecology-based aggradation-conservation agriculture (ABACO): Targeting innovations to combat soil degradation and food insecurity in semi-arid Africa (2012) P. Tittonell et al http://www.sciencedirect.com/science/article/pii/S0378429011004151	Agroecology has been specifically discussed and mentioned in section 6.3.1.1.
McAfee, Brenda	Ch. 6	14	355	14	373	Great to find this comprehensive explanation of conservation agriculture. It would be helpful if a succinct version was moved up to the SPM and to the intro of chapters where it is mentioned as a response option.	A discussion of Conservation Agriculture is being moved up to the Executive Summary for Chapter 6 and the comment is passed onto the SPM writing team.
Ingrid Hartmann	Ch. 6	14	355	15	396	Independent from FAO's definitions, conservation agriculture is usually as a practice which uses minimum tillage leading to good physical soil properties and enrichment of organic matter in the topsoil. However, on the downside it operates with a lot of pesticides, especially glyphosate (Roundup from Monsanto), particularly in the South American countries mentioned. The negative impacts of these pesticides on soil biodiversity and human health are also not mentioned, also not, that glyphosphate will be probably prohibited in the European Union next year, and alternatives are not yet identified. Organic approaches are therefore much more favourable to improve soil biophysical properties and stimulate soil biodiversity, therefore to reduce land degradation (while of course Conservation agriculture can also be organic, but that is hardly the practice). Pls provide statistics on conservation agriculture with positive impacts on soil parameters, but contrast them with statistics on glyphosate use, Refer to negative health impacts, and interest of corporations here	The CA discussion in the final draft has been expanded to include a section that specifically addresses the glyphosate issue (~lines 407-427).
Virginia Meléndez Ramírez	Ch. 6	14	355	14	355	Conservation agriculture definition before Table 6.1	Key terms have been defined in the LDRA glossary.
Germany	Ch. 6	14	356	14	358	The previous chapters also use the term "conservation agriculture (CA)". It would therefore be very useful, if LDR-assessment report includes a general glossary, that lists definitions of commonly used terms. This would ensure that the same definition is used throughout the document.	There is a general glossary developed for the LDRA and key terms have been defined in the glossary.
Ruishan Chen	Ch. 6	12	362	18	609	soil conthird author meetingination and soil pollution should also be included here.	This comment is from a Chapter 6 author and relates to the content of Chapter 7. This comment has been passed to Chapter 7 for consideration.
Yujie Wang	Ch. 6	15	378	15	378	Please change "soils disturbance" to "soil disturbance".	Done on line 399 of the current draft
Steve Prince	Ch. 6		386		395	See Ch.4 Sect 4.3.3.	The duplicated text was allocated to specific chapter during the Third Author Meeting in Rome. The issues in addressed in the final draft.
Markus Giger	Ch. 6	15	387			Regarding Argentina data (but also other countries), I am not sure whether these surfaces really comply with all the criteria from the FAO (especially the criteria of rotation or association of crops cultures). So this would need a qualification.	The CA discussion from ~line 374 through 454 has been revised to reflect the comment.
Sandhya Chandrasekharan	Ch. 6	15	389	15	390	not clear what is conveyed here. Is the "new data" the net area?	Reworded in the revised version of the draft (final draft).

Emmanuelle Quillérou	Ch. 6	15	395	15	396	The paper below is more mixed about the results with conservation agriculture. Yields can increase but not everywhere (no increase in the case of the paper below compared to conventional practices). There is no account for costs but only yields. Monneveux, P., Quillérou, E., Sanchez, C., Lopez-Cesati, J. (2006) Effect of Zero Tillage and Residues Conservation on Continuous Maize Cropping in a Subtropical Environment (Mexico) Plant and Soil, 279(1-2): 95-105.	The suggested reference deals with zero tillage and residue management within a continuous maize cropping system. The study contains components of CA but does not meet all the criteria, primarily because only a small portion of the study included jackbean (Canavalia ensiformis L.) which is really not sufficient to meet criterion #3 (diversification of crop species) associated with a true CA study.
Astrid Hilgers	Ch. 6	15	397	15	397	We have to be careful with these numbers because we are dealing with different definitions. One could interpret the number that 74 % of arable crop land is preserving and enhancing the resource base (following the definition of CA, page 14, line 358). This is not true, despite CA, soil degradation is still taking place. (However, it is a good step in the good direction).	The CA discussion in the final draft has been expanded to address the reviewer's concern through increased clarity
Germany	Ch. 6	16	399	16	399	Check whether to replace "UN FAO" with FAO.	Thank you, this has been corrected.
UNCCD SPI (Nathalie van Haren)	Ch. 6	16	400	16	412	The concept Conservation agriculture recognises that pesticides are inevitable: "Synthetic chemical pesticides, particularly herbicides are, in the first years, inevitable but have to be used with great care to reduce the negative impacts on soil life." see the reference that is used in Chapter 6: http://www.fao.org/ag/ca/1a.html . Please include this condition in box 1	The CA discussion in the final draft has been expanded to include a section that specifically addresses the glyphosate issue (~lines 407-427).
Markus Giger	Ch. 6	16	410			The lack of rotations will greatly influence the potential of CA (weed and pest resistance, need for more inputs)	Totally agree. Pillar #3 of CA is crop diversification.
Beria Leimona	Ch. 6	17	415	18	439	Cases on Satoyama and Satoumi that have the concept of agroforestry and multifunctionality of land use can be found here: Subramanian, S.M., Ichikawa, K., Kawai, A., Enhancing knowledge for better management of socio-ecological production landscapes and seascapes: appropriate tools and approaches for effective action. Satoyama Initiative Thematic Review vol., 1. For socioeconomic aspects of the benefits from agroforestry systems and how it can support the achievement of SDGs, can be found here: Leimona, B., Van Noordwijk, M., 2017 Smallholder Agroforestry for Sustainable Development Goals: Ecosystem Services and Food Security. Palawija Forum UNCAPS	Agroforestry as a response to LDR has been discussed in section 6.3.1.1 to capture their effectiveness, considering ILK-practices as well. Relevant references have been cited there. It is a good comment, but the direct benefits of agroforestry system falls within scope of chapter 5 than chapter 6, thus we didn't incorporate suggested reference in the text.
Markus Giger	Ch. 6	17	434			The figure of 43% seems to need some qualification. Looking at the map I see Europe mainly in green (indicating rather high tree cover). This is true, but in practice very little of this is truly agroforestry- it is rather a mosaic of agricultural plots with still substantial forest patches and some hedges or trees. But it is not really agroforestry as the text seems to imply.	The figure on 'global estimates of average % tree cover on agricultural land' is deleted from the final draft in line of making the text more focused on responses and their effectiveness. The entire text has been amended.
Yujie Wang	Ch. 6	17	440	17	442	This figure is not clear, please improve it.	The figure on 'global estimates of average % tree cover on agricultural land' is not part of the final draft. It has been deleted to incorporate most relevant text on responses and their effectiveness.
Germany	Ch. 6	17	441			This Figure has a low resolution quality. Please improve it.	The figure on 'global estimates of average % tree cover on agricultural land' is not part of the final draft. It has been deleted to incorporate most relevant text on responses and their effectiveness.
Eila Gendig	Ch. 6	17	441			Figure 6.3: at this resolution, the difference in tree cover are marginal (and non-visible on b/w prints). Aggregation into 10% (or more) blocks?	The figure on 'global estimates of average % tree cover on agricultural land' is not part of the final draft. It has been deleted to incorporate most relevant text on responses and their effectiveness.
UNCCD secretariat	Ch. 6	17	441			The authors may want to refer to the recent information on forest in drylands. Bastian et al(2017) Science	In the revised final draft, the chapter focused more on responses and their effectiveness rather than description of the type and extent of forests. So the suggested reference has not been cited.

Eila Gendig	Ch. 6	18	443		478	Box 2 - Definitions included in previous chapters (chpt 4?)	In the revised Chapters 2, 3 and 4 (as of 1 Dec) agroforestry definitions are not included. At this stage we therefore decided to keep the definition as is. Minor overlaps and redundancies are sometimes necessary to make the chapter a readable, standalone document.
Eila Gendig	Ch. 6	18	480	19	504	The "Policy options" section contains content relevant for all types of responses. It is not clear, why the section is sitting within the "Cropland"-block? Especially when the following chapters 6.3.2.2 to 6.3.2.5 do not contain reference to policies	The outline of the section is restructured for the final draft in Rome to address the comment. Accordingly, relevant policy options are integrated within specific type of land degradation as well as dealt exclusively in section 6.4.
Beria Leimona	Ch. 6	18	481	21	568	Influential factors that land management can be found from a global synthesis of case studies: Mainstreaming concepts and approaches of socio-ecological production landscapes and seascapes (SEPALS) into policy and decision-making - Satoyama Initiative Thematic Review Vol. 2	The influential factors of land management relate to drivers, which are covered in Ch 3.
Ruishan Chen	Ch. 6	16	486	16	486	1oC should be 1°C	Corrected in final draft.
Germany	Ch. 6	19	497	19	497	"tillage erosion" as such is always related to wind because without the wind particles blown up during the tillage process would simply fall down to earth again.	On rolling topography "tillage erosion" is not always the same as wind erosion. The chapter is already quite long so no additional information was added.
Astrid Hilgers	Ch. 6	19	498	19	501	This sentence could be more balanced: review sentence while taking into account the other responses as indicated on page 11 line 287 "One of the most effective ways to accomplish this complex task is to move technology, personal commitment, and fiscal resources toward fulfilling the principles associated with conservation agriculture, because that practice has been demonstrated globally to restore many critical soil functions (productivity, filtering and buffering, biodiversity, etc.)."	The discussion on conservation agriculture in the final draft has been expanded to address the reviewer's concern.
UNCCD SPI (Nathalie van Haren)	Ch. 6	19	498	19	501	Bias towards Conservation agriculture: review sentence while taking into account the other responses as indicated on page 11 line 287 "One of the most effective ways to accomplish this complex task is to move technology, personal commitment, and fiscal resources toward fulfilling the principles associated with conservation agriculture, because that practice has been demonstrated globally to restore many critical soil functions (productivity, filtering and buffering, biodiversity, etc.)."	The discussion on conservation agriculture in the final draft has been expanded to address the reviewer's concern.
Virginia Meléndez Ramírez	Ch. 6	19	505	19	505	Box 3 Explain restoration or rehabilitation	It is restoration and has been specified.
Liu Jinlong	Ch. 6	19	510		511	please specify name of the project. I believe it is one among many projects, as loess plateau covers large areas.	One specific program is "grain for green", which is referred in the text in box 3.
Ju Zhengshan	Ch. 6	20	541	20	542	Tsunekawa et al.(2014a) wrote the first comprehensive book in English on the development of the Loess Plateau.	Thank you.
Liu Jinlong	Ch. 6	20	555			Delete J. (at citation)	Done
Ju Zhengshan	Ch. 6	20	564	20	564	Figure 6.4, It is better to add the time of two pictures.	Done
UNCCD SPI (Nathalie van Haren)	Ch. 6	20	566	20	568	Bias towards Conservation agriculture: review table 6.6 while taking into account agroecology as recognised as a sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 "Towards alternative paradigms" and the other responses as indicated in chapter 6 on page 11 line 287: agroforestry, sustainable agricultural practices	The discussion of conservation agriculture in the final draft has been expanded to address the reviewer's concern.
Markus Giger	Ch. 6	21	566			Table 6.6. discusses only three options - this can only be an example as many more options are available. It should be mentioned in the title of the table. Also in the other sections you are giving much more option...This same level of aggregation should apply in all the chapters.	Agree. The tables for each section in 6.3 with more specific responses (as revised in final draft) are now summarized as a response effectiveness table and presented at the end of section 6.3.1 and 6.3.2.

Markus Giger	Ch. 6	21	566			The assessment of CA is too positive, if you do not apply the FAO criteria fully and exclude crop rotation = monocultures under zero tillage may have some environmental benefits but also lead to a lot of environmental damage as loss of biodiversity, protective trees, endangered water resources. Also the social and cultural losses may be high in such cases.	The discussion of conservation agriculture in the final draft has been expanded to address the reviewer's concern.
Ju Zhengshan	Ch. 6	21	566	21	568	Policy changes seems not like a 'direct response options for cropland degradation', and it is not at the same level of 'conservation agriculture' and 'agroforestry'.	Agree. Revised and corrected in the summarised tables presented at the end of sections 6.3.1 and 6.3.2.
Eila Gendig	Ch. 6	21	566			Table 6.6 - Wouldn't the potential response options work best in a highly localised context? I do not see how it is possible to generalise these at a global scale	Agree with the comment. An attempt is made to provide some broad suggestions on effectiveness of responses based on various criteria in the revised tables.
McAfee, Brenda	Ch. 6	21	575	21	577	Is the reference for this statement also Benayas et al 2009?	Thank you. The suggested citation has now been cited to make the statement more clearer.
Germany	Ch. 6	22	594	22	595	Why is REDD+ "an emerging mechanism"? Weren't most of the key REDD+ decisions taken by 2013 and the rulebook finalised in 2015? Please cross-check.	The sentence has been revised to explain the REDD+ and its pros and cons.
Steve Prince	Ch. 6	22	613		613	Not so. Often the fragmentation of forests is caused by conversion to another ecosystem type, often grassland or crops. See Ch 4. sect 4.2.7.	Replaced devegetation by deforestation.
Steve Prince	Ch. 6	22	618		630	Ch. 4 material. See Sect 4.2.7.	L618-630 is all about responses to fragmentation. Chapter 4 talks about it but a bit differently, now the text has been streamlined with chapter 4 content.
Germany	Ch. 6	22	624	22	624	"Avoiding" in this context seems unprecise. In the meaning of the sentence it would be much more logical to consider words like "Mitigating", "Reversing", etc	Replaced by reversing
Germany	Ch. 6	23	645	23	645	"and/or their pests and diseases" for instance the pine nematode (<i>Bursaphelenchus xylophilus</i>) was introduced to China together with <i>P. elliotii</i> . While these have a high resistance to the nematode the local <i>Pinus massoniana</i> has not. Thus the introduction of the disease is not only always attacking the introduced species but also the native ones. Another example is <i>Anoplophora glabripennis</i> (Asian long-horned beetle).	Replaced by and/or as suggested.
Mahmood Yekeh Yazdandoost	Ch. 6	23	647	23	655	Very important. Also recommend more elaboration on their existing biocapacity potential.	We elaborated this point with two more sentences.
McAfee, Brenda	Ch. 6	23	647	23	647	Sentence should start out with Secondary forests as the heading and the rest of the paragraph deal with forests not all types of vegetation.	Replaced by "secondary forests".
Karen Holl	Ch. 6	23	648		648	should be "using a small number of..."	The text/sentence is modified.
Eila Gendig	Ch. 6	23	657		675	Sustainable logging is not equal to certified forest products. Would be good to add an explanation that certification is meant as "sustainable logging". Also include description of alternatives to clearcut logging, which is not necessarily related to FSC and similar certificates	It is clearly explained in the SOD and also in the final draft. Certification as a form of social/cultural instrument is extensively dealt in section 6.4.2.4.
Germany	Ch. 6	23	658	23	659	When referring to C&I for SFM it would also be good to mention the nine regional processes initiated after The Rio Convention in 1992 (http://www.fao.org/forestry/ci/16609/en/) which paved the way for publications like those presented by ITTO in 2016	The most recent guidelines to Reduced Impact Logging (ITTO 2016) is referred here partly for economy of space.
Yujie Wang	Ch. 6	23	658	23	658	Please change "reduced impact logging" to "reduced logging impacts".	Reduced impact logging is the correct one here.
Ingrid Hartmann	Ch. 6	23	659	23	666	certification is an economic instrument, does not belong into section on biophysical responses, rather into Chapter 3.	This is not exclusively about biophysical responses only in this section. We elaborate certification as a specific response in social/cultural instrument section later (6.4.2.4).

Germany	Ch. 6	23	667	23	669	Include some references to enable further reading on the statement that "in many countries ... governments recognized land tenure ... to promote decentralization and shared landscape governance."	This text has been revised. Land tenure related synthesis has been presented in sections 6.4.2.2, 6.4.2.3, and 6.4.2.4 with additional references.
Germany	Ch. 6	23	668	23	668	The term now used in CBD is "indigenous peoples and local communities".	Replaced
Eila Gendig	Ch. 6	24	680		694	Are these sorted by relevance and importance? Even if not, it would be helpful to move the most beneficial ones for native ecosystems to the front.	Thank you, reordered.
Javier Ernesto Cortés Suárez	Ch. 6	24	680	24	694	These should also include restoration process through wildlife, not only because it is an enhancer of the restoration process, but also because it can help to reduce costs of restoration by assisting it.	Not clear on how to use wildlife as a tool for restoration. Also, natural regeneration implies seed dispersal. So no change in text.
Germany	Ch. 6	24	683	24	683	substitute "useful" with "valuable"	Replaced
Virginia Meléndez Ramírez	Ch. 6	24	686	24	686	and reintroduction of key species such as pollinators, seed dispersers, recyclers of organic matter, etc.	Not clear on how to use wildlife as a tool for restoration. Also, natural regeneration implies seed dispersal. So no change in text.
Germany	Ch. 6	24	709	24	710	delete "reviewed" and remove brackets	Done
Eila Gendig	Ch. 6	24	711	25		Table 6.7 - Would it be possible to transform the table into the response framework (e.g. See prototype table 6.2), so it is uniformly applied to all aspects of land degradation and response types?	This table has been deleted in the final draft to avoid duplication of information, but important responses presented in it are part of the response effectiveness table presented at the end of section 6.3.1.
Germany	Ch. 6	25	711	25	711	In Table 6.7 , point 3. Protective Land and Land Buffers; type c) other protective land and buffer it seems advisable to include a new FLR category/Option named: "Land-slide Control"; Rationale: In many of the tropical and subtropical regions heavy rainfall is frequent and according to climate modelling likely to increase . Thus, protection from land-slides is a major concern in many regions. Many devastating events in different regions of the world occurred just recently (e.g Colombia).	This table has been deleted in the final draft to avoid duplication of information, but important responses presented in it are part of the response effectiveness table presented at the end of section 6.3.1.
Otávio Gadiani Ferrarini & Carlos Alberto de Mattos Scaramuzza	Ch. 6	26	731	26	733	In this chapter is presented that "the current restoration area under the Pact is 60000 ha" whereas in chapter 1 it is spoken of "more than 40000 ha restored" under the Pact. It is necessary to establish the same values in the two chapters.	Corrected to align with chapter 1.
Ingrid Hartmann	Ch. 6	27	779		780	How about comparing first different concepts of rangeland degradation, like succession approaches, state and condition approaches etc., general equilibrium and non-equilibrium approaches, and from these overall perspectives bring examples, instead of giving examples for single facts without the overall context they have to be seen?	The comment relates to the processes, which are described in chapter 4 (section 4.3.2). This chapter focuses on responses only, so description of processes in detail is not warranted.
Ingrid Hartmann	Ch. 6	27	779	29	867	Something should be written on concepts of opportunistic grazing versus controlled grazing, and how this impacts herders and rangelands. Further changes of livestock composition should be mentioned as a local response to changes of rangeland, such as the switch towards more camels and goats, while sheep and cattle is reducing with increasing shrubs and reducing grass vegetation. Responses to rangeland management are not put into relation to livestock feed, which would be necessary, if the scheme in Box 1 is to be followed (with regard to ecosystem services and human-well being).	Opportunistic grazing versus controlled grazing is elaborated in the case study (Case study # 4 within this section). Changing livestock composition as a local response is mentioned in this section.
Steve Prince	Ch. 6	27	779		779	See Ch.4, Sect 4.2.6.2.	Cross-referencing with Chapter 4 added.
Steve Prince	Ch. 6	27	780		781	No citation? From my knowledge there are no reliable estimates. See comments on Ch 5, Sect 5.3.1.1., lines 820-824	The WOCAT reference in this section is the key reference (cited earlier in section) and cross-referencing is done with chapter 3 (section 3.2.1.1) where further references are provided.

						LDRA agreed a scheme of naming ecosystems ("units of analysis"). Check the list to see if any of the types listed here are included and, if so, use the agreed terms. Note Savannah is listed as savanna with no h..	
Steve Prince	Ch. 6	27	781		782		It was checked and corrected
Steve Prince	Ch. 6	27	786		786	And Ch. 4, Sect. 4.2.6.3.	Cross-referencing with Chapter 4 added.
Steve Prince	Ch. 6	27	790		790	kangaroos are major issue in Australia, wild horses in western USA	Added
Steve Prince	Ch. 6	27	791		791	See Ch.4 , sect. 4.1.2.2.	As such 4.1.2.2 is basically explaining a figure on degradation thresholds without any references, WILL REFER to the SECTION in final draft based on the revision made in the section.
Steve Prince	Ch. 6	27	798		798	See Ch. 5, 5.2.3.1. comment. Also Gibson, C. C., & Marks, S. A. (1995). Transforming rural hunters into conservationists: An assessment of community-based wildlife management programs in Africa. World Development, 23(6), 941–957. http://doi.org/10.1016/0305-750X(95)00025-8 .	Section 5.2.3.1 deals with poverty without addressing land degradation and Gibson and Marks, while not fully concur with suggestion, the option is added.
Germany	Ch. 6	28	807	28	807	Include "local"; the sentence should read: "..., indigenous and local practices, ..."	Added
Steve Prince	Ch. 6	28	817		821	Sounds reasonable, but only possible in very limited areas (<~10km2). Cite prince 2016 (reference given in comment on line 840)	A relevant sentence added with a reference.
Steve Prince	Ch. 6	28	821		821along particularly sensitive parts of the landscape, e.g. slopes, water point, riparian strips...	Added
Steve Prince	Ch. 6	28	827		827	This concept has been developed and applied in the Local NPP Scaling (LNS) technique (Prince 2016) and applied in Zimbabwe (Prince et al. 2009), northern South Africa (Wessels et al. 2008), SW USA (Noojipady et al. 2015) and part of Queensland, Australia (Jackson et al. 2016a and b)). It has possibilities for monitoring and identification of degraded areas at scales <= 6ha. Citations:*****Prince, S. D. (2016). Where does desertification occur? Mapping dryland degradation at regional to global scales. In R. Behnke & M. Mortimore (Eds.), In The End of Desertification? Disputing Environmental Change in the Drylands. Springer-Praxis Earth System Science Series.*****Prince, S. D., Becker-Reshef, I., & Rishmawi, K. (2009). Detection and mapping of long-term land degradation using local net production scaling: Application to Zimbabwe. Remote Sensing of Environment, 113(5), 1046–1057. http://doi.org/10.1016/j.rse.2009.01.016 *****Wessels, K. J., Prince, S. D., & Reshef, I. (2008). Mapping land degradation by comparison of vegetation production to spatially derived estimates of potential production. Journal of Arid Environments, 72(10), 1940–1949. Retrieved from http://www.sciencedirect.com/science/article/B6WH9-4SWP213-1/2/ab78cf9afa243ec515784f7124cf3f0c *****Noojipady, P., Prince, S. D., & Rishmawi, K. (2015). Reductions in productivity due to land degradation in the drylands of the southwestern United States. Ecosystem Health and Sustainability, 1(8), art27. http://doi.org/10.1890/EHS15-0020.1 *****Jackson, H., & Prince, S. D. (2016a). Degradation of net primary production in a semiarid rangeland. Biogeosciences, 13(16), 4721–4734. http://doi.org/10.5194/bg-13-4721-2016 *****Jackson, H., & Prince, S. D. (2016b). Degradation of Non-Photosynthetic Vegetation in a Semi-Arid Rangeland. Remote Sensing, 8(8), 692. http://doi.org/10.3390/rs8080692 .	A sentence with reference was previously added in this section. Although important, owing to limited space allocation remote sensing is not further elaborated.
Steve Prince	Ch. 6	28	840		840	If these include monitoring, Prince 2026 deals with some important issues. (Prince, S. D. (2016). Where does desertification occur? Mapping dryland degradation at regional to global scales. In R. Behnke & M. Mortimore (Eds.), In The End of Desertification? Disputing Environmental Change in the Drylands. Springer-Praxis Earth System Science Series.)	Incorporated.

Ingrid Hartmann	Ch. 6	29	867		867	Box 6: the concept of carrying capacity is mentioned in the box. The concept of carrying capacity is very contested in respect to rangeland, therefore, better than using it here, it would be good for the chapter, if the concept of carrying capacity – in relation to various non-equilibrium concepts, such as state-and-condition concepts for describing rangeland degradation and their recovery states would be discussed in this chapter	Cross-referencing with Chapter 4 (section 4.2.6.2.2).
Anna Trakhtenbrot Germany	Ch. 6	29 30	867	30		While the overgrazing on Israel-Egypt border is well documented , especially through remote sensing techniques (more citations might be needed) - the comparison to Israel-Joradn border and the rift valley is unclear. The ecosystems and the soil are different - a desert with drifting sand at the south (Israel/Egypt), semi arid to mediterranean climate and non-sandy soils in the northern rift valley - so the conclusion that the difference in pattern is due to different grazing regimes seems, as written here, premature. More citations from the literature to strengthen this point are needed. This Figure 6.5 has a low resolution quality. Please improve it.	Explanation provided and citation added. Replaced as suggested.
Eila Gendig	Ch. 6	30	867			Figure 6.5 - The difference in the satellite image in vegetation cover might also be attributed to changes in local climate, soil type and structure, rainfall patterns and others. Not necessarily only to pasture management. What is the current state of vegetation cover in this area? The picture shown is >30 years old.	Replaced as suggested.
Steve Prince	Ch. 6	30	867			I aware of no grazing in the Jordan valley, at least in the area shown. There is grazing in the mountains to either side. The "management" that creates the cross-boarder difference between Egypt and Israel is a result of periodic forcible exclusion of grazers from the Halutza sands. Hardly an IPBES recommendation!	The case study here is not about the local scenario, but rather an example of the difference between the effects of pastoral overgrazing (Egypt), compared to moderate pastoral grazing (Israel) and to regulated grazing (Jordan Valley).
Markus Giger	Ch. 6	30	869			Table 6.9 This table is much more complete than 6.6., but the rating has been done qualitatively and not using the same sytem as 6.6. The two should be aligned.	The table is aligned to reflect uniformity with other tables.
Javier Ernesto Cortés Suárez	Ch. 6	30	869	30	870	Table 6.9 - It is confusing, specially the way the reponse options are evaluated. These should be reviewed.	The table has been revised.
UNCCD SPI	Ch. 6	30	869	30	869	Edited spacing in Table 6.9	Done
Germany	Ch. 6	31	869			Not quite clear, what is meant by "Just if involves alien flora"?	Revised
Steve Prince	Ch. 6		873		873	See Ch. 4, Sect 4.3.10.	Corrected
Sandhya Chandrasekharan	Ch. 6	32	874	32	876	soil sealing needs to be mentioned here	soil sealing is added.
Astrid Hilgers	Ch. 6	32	876	32	876	Whether heat island effects can be considered land degredation is debatable.	heat island is the the impacts of urban land degradation, and it is mentioned in the scoping document.
Zhao Gengxing	Ch. 6	31	877	31	877	"8.3.1.1.2" should be "8.3.1.1.3"	corrected
Javier Ernesto Cortés Suárez	Ch. 6	32	878	32	879	Figure 6.6 - Which invasive species? Plants? animals? Not for the fact of being obvious to me, it means that it is obvious to others. These should be clarified.	here the invasive species means plants.
Yujie Wang	Ch. 6	32	878	32	879	This figure is not clear, please improve it.	It is very clear in the final draft
U.S. government	Ch. 6	32	879			Mitigating storm impacts (including flooding - which is included) is also an important issue. Many urban areas are in sensitive coastal areas where increased storm/hurricanes and coastal flooding are emerging issues (and can be drivers of degradation or can provide impetus to improve resiliency of the urban landscape).	We consider the storm impacts in flooding and related responses.
Karen Holl	Ch. 6	32	879	32		Fig 6.6 why does one of the bottom center quadrats have no "main issues or processes" so there's just a "....." in the box. It seems like that box could be removed.	There are many issues and processes related to urbanization, but we can't include all of them, so we just put a "..." to represent the complexity.
Eila Gendig	Ch. 6	32	883	33	931	Are there examples or case studies of using hyperaccumulating plant species to remediate polluted soils in urban environemtns? If tested/trialled, please include	hyperaccumulating plant species are always used in agricultural and mining areas, there is scarce cases that they were used in urban areas.

Steve Prince	Ch. 6	33	893		893	Delete "energetic" and insert "energy" crops	corrected
Marcus Zisenis	Ch. 6	33	915	33	917	A less biased generalization of non-native species in cities would be scientifically appropriate (e.g. Zisenis, Marcus. "Alien plant species: A real fear for urban ecosystems in Europe?." Urban Ecosystems 18.2 (2015): 355-370.).	Added a less biased sentence in the paragraph with additional text on invasive species in urban environment.
Sandhya Chandrasekharan	Ch. 6	33	922	33	923	Good to know. Would it not be policy relevant to have the details drawn up in case studies/ boxes?	Thank you. Yes, it is relevant and case studies are presented for the same purpose.
Eila Gendig	Ch. 6	33	922		923	Can you please add examples of the methods used? E.g. Greening of roof spaces, changing city boundaries,...?	Responses to reduce heat island effect in cities include developing or maintaining "green infrastructure" such as greening roof spaces, vertical greening and green park lot.
Eila Gendig	Ch. 6	33	932	34	953	If applied, top-down regulations as described here don't seem to leave space for traditions, historical and cultural connections to places. Where do these ecosystem functions sit within the policy example?	This is a policy framework and it specifies spaces for different landscape, the tradition, historical and cultural places are prohibited to further disturbance if their value need to be protected.
Ju Zhengshan	Ch. 6	33	932	34	953	major function-oriented zoning is for regional planning by spatial zoning. It has made great contribution for Chinese sustainable developing. But it has indirect correlation with minimising land degradation in urban areas. It is better to add more explanations in this part.	This part has been moved to the land use planning and zoning part.
Liu Jinlong	Ch. 6		932		953	box 7 did not put in the right place. Required China's government agency to check. I am not about some of statement in the figure.	This part has been moved to the land use planning and zoning part
Eila Gendig	Ch. 6	33	936			Please change reference to all latin letters	Corrected, thank you.
Yujie Wang	Ch. 6	33	936	33	936	"Fan 樊杰 et al., 2012". Please delete the author's Chinese name 樊杰.	Corrected, thank you.
Yujie Wang	Ch. 6	34	949	34	949	"Fan 樊杰 et al., 2012". Please delete the author's Chinese name 樊杰.	Corrected, thank you.
Yujie Wang	Ch. 6	34	957	34	957	Please change "in different context" to "in different contexts".	Corrected, thank you.
Astrid Hilgers	Ch. 6	35	960	35	961	I am not sure how the effectiveness of the response options is assessed. An example "Increase green space area" is highly effective but from an economic point it is often considered to be too expensive. Even from a political point of point is typically extremely difficult. A better explanation is needed.	Thank you, increase green space area is expensive and economically ineffective, but politically, government want more green areas to improve the urban environment, even sometime it is debatable.
Gardner	Ch. 6	35	961	35	961	In Table 6.10, sea walls are listed as a response option as highly effective for environmental purposes? Sea walls can have a very negative effect on the environment and biodiversity (eg, sea turtle nesting areas). What about natural infrastructure, which is discussed in lines 992-1004? That option ought to be emphasized.	Here in the table we only focused on the direct response options to urban land degradation, although we understand natural infrastructure is more important to storm protection.
Elizabeth Hess	Ch. 6	35	962	37	2060	This entire section (6.3.2.5) needs to be closely edited, there are several grammatical issues and other inconsistencies within this section and between other sections/ chapters (e.g., et al., vs et al, A few are listed below	This section has been extensively revised to improve technical text as well as grammatical issues. The final draft reflects this improvement.
Germany	Ch. 6	35	964	35	965	Regarding the extent of the decline of wetlands, check the figures provided here with the different figures on wetland decline provided in chapter 2, page 20, lines 709-712. It would be very helpful if the same figures on an issue are used through all eight chapters of the LDRA. Please also check and if necessary align the decline rate figure for mangrove forests as well.	Agree. Latest figures have been cited for extent of wetland loss globally. The difference in figures between the two chapters specific type of wetland is due to different types of wetlands discussed - wetlands in mangrove forests in Ch 6 and decline in state of wetlands in Ch 3.
Gardner	Ch. 6	35	968	35	968	Rather than citing Gardner et al. for the \$20 trillion in losses, cite the primary source: Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Farber, S., & Turner, R. K. (2014). Changes in the global value of ecosystem services. Global Environmental Change, 26, 152-158.	Corrected.
Karen Holl	Ch. 6	35	972			"dependent" is misspelled.	Corrected.

Elizabeth Hess	Ch. 6	36	983	36	990	would be nice to refer to Ramsar's Integrated framework for avoiding, mitigating, and compensating wetland loss either in this paragraph or as a separate paragraph. See : http://archive.ramsar.org/pdf/cop11/res/cop11-res09-e.pdf	The text is revised reflecting the framework.
Elizabeth Hess	Ch. 6	36	985	36	985	Finlayson et al., 2001 is listed as Finlayson et al. 2011 on page 84	Corrected.
Elizabeth Hess	Ch. 6	36	987	36	987	the word "the" is missing in the definition. Achieved through "the" implementation. See: http://www.ramsar.org/about/the-wise-use-of-wetlands	The text is revised.
Elizabeth Hess	Ch. 6	36	988	36	988	the sentence starting with Removing the stressor or pressure the limit. Doesn't make sense. Please review the sentence. Not sure what the word "the" is referring to?	This section has been extensively revised to improve technical text as well as grammatical issues. The final draft reflects this improvement.
Elizabeth Hess	Ch. 6	36	989	36	989	should be their ecological character vs its ecological character	Revised/corrected
Gardner	Ch. 6	36	992	36	994	Consider referencing the Ramsar policy brief on multiple wetland values that adapts the IPBES 6-step guide: http://www.ramsar.org/sites/default/files/documents/library/rpb_values_of_wetlands_e.pdf	This document has been cited in the revised text.
Elizabeth Hess	Ch. 6	36	992	36	992	delete the word "a" national policies	Corrected.
Gardner	Ch. 6	36	1006	36	1010	The Ramsar Strategic Plan makes restoration a global priority.	Thank you.
Elizabeth Hess	Ch. 6	36	1010	36	1010	SER 2004 is not listed in references. Please verify	Corrected.
Elizabeth Hess	Ch. 6	36	1014	36	1014	Please check "(" in references	Following the revision of the technical text, reference has been aligned properly.
Karen Holl	Ch. 6	36	1020			There is a word or words missing as this sentence doesn't make sense as written.	The text has been revised for final draft reflecting this comments.
Elizabeth Hess	Ch. 6	36	1020	36	1020	Bosire et al., 2008 not listed in references in page 84	The reference list has been updated to match text citation and the bibliography.
Elizabeth Hess	Ch. 6	37	1027	37	1029	Reference of Nellemann, C & Corcoran is not listed corrected. Should be Nellemann and Corcoran. 2 times	Corrected.
Elizabeth Hess	Ch. 6	37	1038	37	1042	W.J. Mitsch references and William J. Mitsch reference are not listed corrected. Should be Mitsch et al., also, note Mitsch et al., 1998 is not listed in the references on page 85	The reference list has been updated to reflect what is cited in the text for final draft.
Elizabeth Hess	Ch. 6	37	1046	37	1047	This sentence starting with "in this way" doesn't make sense. I believe the word "used" is missing at front end and then the latter half is confusing too- not clear	This section has been extensively revised to improve technical text as well as grammatical issues. The final draft reflects this improvement.
Elizabeth Hess	Ch. 6	37	1050	37	1050	this ability of wetlands sentence should be rephrased as not clear what the ability is referring to. Suggest, the ability of wetlands to improve water quality has led to a	This section has been extensively revised to improve technical text as well as grammatical issues. The final draft reflects this improvement.
Elizabeth Hess	Ch. 6	37	1059	37	1059	IPPC reference on page 84 is 2015 and not 2014	Corrected.
Elizabeth Hess	Ch. 6	37	1059	37	1059	The word "ae" should be "have"	Corrected.
Eila Gendig	Ch. 6	37	1060			Can there be a table of response options for wetland restoration, just like in previous chpt?	Thank you.

Astrid Hilgers	Ch. 6	37	1061	72	2242	The connection between 6.3.3 and 6.4 is unclear. Also policy instruments are responses to drivers. So, how does this section work? The discussion of policy responses and instruments is quite generic. The connection to the specific issue of land degradation should be clearer (or, if such a link is absent, consider to remove the text). A final general comment about 6.4 is that I miss a systematic overview about what values are reflected (or marginalized) in the different policy instruments and how they in and exclude ILK.	The section headings have been revised based on this comments. The earlier section 6.3 (6.3 in the final draft as well) is now primarily about on the ground responses, specific to particular land use types and drivers. Agree with reviewers comments that policy instruments are a type of responses which are either enabling or instrumental responses for the most part. In the revised draft, section 6.4 [sections 6.3.4 and 6.4 in SOD] is about broad categories of enabling and instrumental responses, where the analysis is based on the effectiveness of these instruments irrespective of drivers and landuse types. So the focus is on effectiveness of enabling and instrumental responses rather than on the ground mangement actions in 6.4 [which is the subject of section 6.3]. Current version of 6.4 covers broad range of responses, ranging from policy instruments, institutional and governance reform, provision of anthropogenic assets and the research gaps. The text has been extensively revised to make more specific to land degradation issues. The discussion on what values are reflected or marginalised by different policy instruments is not explicitly dealt in the text but captured in sections such as 6.4.2.2, 6.4.2.4, and 6.4.5.
McAfee, Brenda	Ch. 6	37	1062	41	1174	While this section provides comprehensive coverage of global actions and initiatives on invasive species, the consequences of the use of invasive species in restoration projects could be strengthened.	As one of the goals of restoration is to create an ecosystem which is resistance to invasion or resilient to disturbances (D'Antonio et al., 2016). The revision didn't emphasize the use of invasive species in restoration projects which seems against the objective of restoration as defined here. Added some text and this citation at the end of the concluding paragraph in section 6.3.2.1.
Eila Gendig	Ch. 6		1062		1174	Examples are predominantly plant focussed - though all biota (incl. Virus, fungi, bacteria, insects, mammals and other animals) can be considered an IAS	Thank you for the comment. The text has been revised to incorporate all invasive species. The opening paragraph in the subsequent section on response classification are inclusive of all species.
Thomas Brooks	Ch. 6	38	1087	38	1087	It would also be useful to add mention here of the Environmental Impact Classification of Alien Taxa (Blackburn et al. 2014 http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001850 ; and see http://www.issg.org/).	The suggested reference Blackburn et al (2014) is primarily discussing the framework to measure and categorise impacts of IAS, rather than responses to IAS. It has been cited in this section to indicate classification invasions.
Yujie Wang	Ch. 6	39	1094	39	1095	This figure is not clear, please improve it.	Attempts have been made to improve the resolution of the figure.
Germany	Ch. 6	39	1095			This Figure has a low resolution quality. Please improve it.	Attempts have been made to improve the resolution of the figure.
Australia NFP	Ch. 6	39	1105	39	1118	The Australian Government considers biosecurity more broadly than just environmental biosecurity. Please amend the text to reflect this.	The text has been amended and a new sentence introduced to reflect the comment on biosecurity policy of the Australian Government (section 6.3.2.1).
Ingrid Hartmann	Ch. 6	40	1140	40	1174	Eradication and control is easier written than done. Here it would be nice, to have some prominent practical examples, which worked and which did not work and why. Which required least costs and labour inputs, which measures were persistent, which were unsustainable?. The example of prosopis juliflora as the most dangerous invasive species worldwide, and its detrimental impact on water resources, and how to deal with it should be mentioned, even though an overview over various initiatives is given. That does not give insigh, which works and which worked not.	The control by use method with reference to prosopis spp. has been incorporated in section 6.3.2.1 along with effectiveness of invasive species control methods.
Eila Gendig	Ch. 6	40	1142		1143	manual or mechanical control of animal species is done via trapping. As yet missing	Thank you. "Trapping" has been included in the revised version (final draft).
Germany	Ch. 6	41	1172	41	1174	Line 1172-1174: "Exploitation of the biomass [...]" This sentence seems a bit lost, and unrelated to the previous sentences in the paragraph. I suggest to add another sentence / revise the paragraph.	This paragraph has been revised. In fact, the sentence has been deleted as it is related to (beneficial?) impact of invasive species rather than response to manage invasion.
Gardner	Ch. 6	41	1174	43	1175	Great case study. We may seek to use (with permission) in the Ramsar Global Wetland Outlook.	Thank you.

Germany	Ch. 6	41	1174	42	1175	Box 8: --> It would be good to add some examples of species responsible for the runoff reduction / dealt with in the project. We did not find any example of species in the box other than <i>Acacia mearnsii</i> , which seems to belong to another project, not the one concerned with water. We suggest to add information on the most important species treated within the project.	The text is revised and information on species is corrected by replacing <i>A. mearnsii</i> by <i>Prosopis spp.</i> - which belong to the WfW project.
Eila Gendig	Ch. 6	41	1174			Box 8 - the problem description, esp. Of what constitutes a IAP in south africa, is not clear. Scrubs, woody species, herbs, grasses???	IAP can be any type of plants or animals. Thus no specification is added in the text to define IAP in South African context.
Caroline van Leenders	Ch. 6	41	1174	67	2045	Box 8.10; why only public funds again?? Why leaving out the whole private finance sector? Is 90% of financial capital!	The contribution of private sector/businesses in land restoration has been extensively provided in sections 6.4.2.3 (natural capital accounting heading) and 6.4.2.4 (under corporate social responsibility heading). This being a specific case study the contribution of government is spelled out, but it does not necessarily imply that private sector investments are not there in landscape restoration (please see sections mentioned earlier).
Liu Jinlong	Ch. 6	41	1174			box 8: para 1, last sentence changed as. China's two lakes at the top 10 largest, Taihu lake, and Chaohu lake are severely polluted with eutrophication (Deng et al., 2015; Zhao, Duan, Stewart, You, & Jiang, 2013) - checked again please.	The focus on this section is on responses to invasive species, not primarily on eutrophication. Revised and deleted the earlier text where impact has been discussed rather than responses.
U.S. government	Ch. 6	43	1175	53	1463	Probably relevant across the entire chapter - there are many ecosystem services which are not well understood, both in terms of measurement (metrics) and response (production functions) to management actions (by whatever driver). These are important aspects to effectively evaluate different approaches to change land use or land management practices. They are also important to evaluate tradeoffs or to value the services.	Agree and hope the expanded text in section 6.3.1.1 improves the message that the challenge is enormous and even the best reviews are limited at best.
Ingrid Hartmann	Ch. 6	43	1175	44		It is difficult to address soil quality issues separately from responses to cropland degradation, etc..All responses mentioned to address to cropland degradation in the above section are also responses to soil quality degradation, as land degradation is always accompanied by soil quality degradation. Then also, the definition of soil quality is too narrow. It would be better to summarize what soil scientists discussed about soil quality the recent two decades. Soil Biodiversity is not even mentioned in regard to soil quality.	Impact of soil biodiversity has been incorporated into the final draft and hopefully clarity has been given to the discussion of soil health/quality.
Markus Giger	Ch. 6	44	1202			The paragraph on "organic" is far from complete. Papers to cite could include Gattinger A, et al. (2012) Enhanced top soil carbon stocks under organic farming. Proc Natl Acad Sci USA 109(44):18226–18231. However the question is also whether it should be included as one measure - as it includes a number of principles but also many measures, some of them the same and some of them different to those analysed in the chapter. This should be said somewhere.	The reference was added in the revised version (final draft)
Ingrid Hartmann	Ch. 6	45	1248			it is simply wrong. Soil quality has nothing to do with profitability, but with the chemical and physical structure and composition of soils and their ecological functions. Soil quality can have to do with the question, if it supports the plant cover humans would like to cultivate. This could be profitable crops, it could also be unprofitable crops, if for instance a rare ecosystem is to be restored.	health/quality that has evolved during the past three decades. The opinion expressed by the reviewer does reflect schools of thought in Germany and elsewhere in Europe but not the U.S., South America, India, China, and other countries in southern Europe. Defined as the intersection of soil biological, chemical, and physical properties and processes, soil health has tremendous influence on nutrient cycling, water entry, retention, and release to plants;
Elie Kodsi	Ch. 6	45	1260	45	1266	ways as described in the paper. This said, the narrative is very academic with limited attention given to the challenging realities on the ground. For example, trying to increase soil organic carbon in marginal dryland areas where expansive grazing is practiced. Or in developed countries where the market drives large-scale mono-cropping systems. This is a general comment that applies to the chapter as a whole - long, academic with limited practical implications. The text is missing pragmatic and feasible recommendations for uptake by practitioners	The final draft has changes incorporated to make it more useful to policy makers and practitioners and therefore less academic.

Ruishan Chen	Ch. 6	40	1263	57	1742	The scenarios of RCPs, SRES and SSPs should be discussed in paralell.	This comment is about Ch 7 not Ch 6
UNCCD SPI (Nathalie van Haren)	Ch. 6	46	1277	46	1289	Bias towards Conservation agriculture: review section while taking into account agroecology as recognised as a sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 "Towards alternative paradigms" and the other responses as indicated in chapter 6 on page 11 line 287: agroforestry, sustainable agricultural practices	The discussion of conservation agriculture in the final draft has been expanded and hopefully addresses the reviewer's concern.
UNCCD SPI (Nathalie van Haren)	Ch. 6	46	1300	47	1301	Include agroecology in Table 6.11 Summary of the direct responses and their effectiveness to soil quality changes	Thank you, this has been Included in the final version
Ingrid Hartmann	Ch. 6	47	1302			organic farming can also be downscaled to various land management practices, which should be done here, if that is to be discussed in the way it is done with other responses. Then, which particular organic farming practices is the author dealing here with? If organic farming in general is questioned here as a response, then it would be necessary to deal with conventional farming as a contrast for consistency. Not that I would find it necessary, but the way it is written here now, is inconsistent. Therefore, to which measures of organic farming is the author referring to here?	This comment does not seem to be related to the section indicated - the SOD does not discuss organic farming with respect to soil quality.
Eila Gendig	Ch. 6	47	1303		1305	land use management and agricultural product should be included as pressures on water quality - e.g. Dairying as water user and polluter leaves a large footprint on waterways	Approaches to reduce water pollution from agricultural runoff has now been addressed in this section, and reinforced in 6.3.1.1 and 6.3.2.3.
Eila Gendig	Ch. 6	47	1303		1318	How about changing to a more droguht resistant crop, changing type of farming, reducing/removing irrigation, as potential measures for water quality improvements>	Responses to these issues are now discussed here as well as in 6.3.1.1 and 6.3.2.3.
UNCCD SPI (Nathalie van Haren)	Ch. 6	47	1304	47	1304	Bias towards Conservation agriculture, please include agroecology as recognised as a sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 "Towards alternative paradigms" and the other responses as indicated in chapter 6 on page 11 line 287: agroforestry, sustainable agricultural practices	Responses to these issues are now discussed in 6.3.1.1 (croplands) and 6.3.2.3 (responses to changes in soil quality)
Markus Giger	Ch. 6	47	1307			Another reference to mention, which would offer a systematisation of approaches to Water Harvesting: Mekdaschi Studer, R. and Liniger, H. 2013. Water Harvesting: Guidelines to Good Practice. Centre for Development and Environment (CDE), Bern; Rainwater Harvesting Implementation Network (RAIN), Amsterdam; Methird author meetingeta, Wageningen; The International Fund for Agricultural Development (IFAD), Rome	The Medkaschi and Liniger reference was used in the revision of this section.
NFP of China	Ch. 6	49	1388	49	1388	The problem does not match the facts, the statistics and the reference are wrong,we recommend to delete BOX 9	This case study has been removed because of the lack of factual clarity.
Liu Jinlong	Ch. 6		1388			box 8: para 1 line 5-7: this sentence is contractive to the next following sentence. In China, for example, about 75% of the population (or 1.1 billion people) do not have access to unpolluted drinking water according to China's own standards (Hogan, 2014). Please check!!!	This case study has been removed because of the lack of factual clarity.
Gardner	Ch. 6	51	1391	53	1463	This section on responses to climate change must link back to the earlier discussion of peatlands! See Chapter 4 (4.2.3.3), which states that peatlands are the largest carbon store of any territorial ecosystem. Protecting and restoring peatlands must be discussed.	Following the meeting in Rome (third author meeting) and the comments received in this section, the text has been re-written with a focus on "climate change adaptaion planning". The land use specific responses to climate change have been incorporated in revised sections 3.1 and 3.2.

Markus Giger	Ch. 6	51	1398			Mangroves are certainly impacted, but why does it appear immediately after the first para which says 33% of soils worldwide are affected. There would be a need to go into that, first.	Following the meeting in Rome (third author meeting) and the comments received in this section, the text has been re-written with a focus on "climate change adaptation planning". The land use specific responses to climate change have been incorporated in revised sections 3.1 and 3.2.
Markus Giger	Ch. 6	52	1438	52	1461	This two paras are not focussing on climate change. The content may be more relevant in earlier sections on land management in general	The content has been extensively revised in this section including the paragraphs noted, which are not part of this section anymore.
Markus Giger	Ch. 6	52	1462			Table 6.12: this table is rather summary. The literature on CC mitigation and adaptation would show much more options.	Agree. This table is deleted in the revised version (final draft) due to the focus on 'climate change adaptation planning' (section 6.4.2.6). The adaptation and mitigation, specific to each land use type are dealt in within sections 6.3.1 and 6.3.2.
UNCCD SPI (and N. van Haren, A. Hilgers)	Ch. 6	52	1464	54	1517	In this paragraph, please add something on insecure land tenure/ land user rights are an indirect driver of land degradation OR secure land user rights enable people to invest in soil management: http://www.sciencedirect.com/science/article/pii/S0959378013000976	Text has been added. Institutions that promote land tenure security is associated with less deforestation (Robinson et al., 2014).
Germany	Ch. 6	53	1466	53	1473	Cross-check with other chapters, whether the figures provided in this para are consistent across all chapters.	Thank you. These figures relate to status of population which is not really the responses. We have deleted this text to focus on responses to demographic changes rather than describing such changes.
Astrid Hilgers	Ch. 6	53	1466	53	1470	Numbers are outdated	These figures relate to status of population which is not really the responses. We have deleted this text to focus on responses to demographic changes rather than describing such changes.
Liu Jinlong	Ch. 6		1494		1503	ecological resettlement programme did implemented in China, but quite contradictive in terms of outcomes from this programme. I do not think these statement support main arguments in the para. Please deleted all these sentences about Chinas' ecological resettlement programme.	We deleted the content related to ecological resettlement programme in China.
NFP of China	Ch. 6	54	1501	54	1503	The description does not match the facts and is recommended to be deleted	The content related to China's ecological resettlement programme is being deleted.
Markus Giger	Ch. 6	54	1518	to the end		This whole chapter contains a lot of good elements. However, it does not touch on the number of international drivers and of instruments (or lack of those) at global level, and seems to focus on national or local level. This leads to void regarding to very powerful indirect drivers, which are discussed also in the literature: - lack of strong and effective action regarding climate change, - disregard of environmental costs associated with production and consumption patterns (externalization of environmental and social costs) - demand fueled by consumption patterns leading to excessive use of land for feed production, biofuels or other commodities - does not discuss effects of population growth and growth of consumption in general - lack of an addressing sustainability concerns by the rules of the international trading system	Thank you for raising these important points. Chapter 6 and chapter 8 have an overlapping scope in terms of dealing with instruments (or lack of them). As a result, Chapter 6 focused primarily at local and national level and Chapter 8 focuses at international level which is reflected in the text and the comment as well. To improve the content of Chapter 6, we have incorporated specific responses on: 1) need for strong and effective adaptation actions regarding climate change in section 6.4.2.6, on top of individual sections (6.3.1.1 to 6.3.1.5) incorporating additional materials to climate change specific responses within them; 2) the environmental costs of production and consumption patterns are incorporated as a way of internalising production and consumption externalities in section 6.4.2.3; 3) the demand fueled by consumption patterns and population growth affecting land use and trade and globalization as indirect drivers are now incorporated in section 6.4.1; and 4) the lack of sustainability concern in international trade is also covered along with demand fueled by consumption patterns within responses to indirect drivers in subsection 6.4.1.
Yujie Wang	Ch. 6	54	1524	54	1525	Please double check the figure caption of Fig 6.11.	The figure and figure caption both have been revised in the final draft.
Yujie Wang	Ch. 6	55	1526	55	1526	Considering the logical relationship among the four levels, I think it would be better to change the direction of the arrow in figure 6.11 to downward.	The direction of the arrows that are used to indicate the logical relationships between different level of policy domains that are based on IPBES guidance documents on "policy support tools and methodologies - IPBES 4 INF 14". The relationship has been clearly stated in the figure caption in the revised final draft.
Markus Giger	Ch. 6	55	1527			Figure 6.11. The table needs some revision. Policy goals does not include off-set, that is mentioned above in the text. It would also make sense to show that there are different levels for different policy instruments (global, national, sub-national and local)	The figure has been revised with inclusion of 'offset land degradation' as one of the policy goals along with specific mention of the spatial scale in the figure caption.

						As the "policy goals", "types of policy instruments" and "policy support tools and methodologies" are responding to any existing or emerging challenges, it may be logical to turn the direction of the arrows around. This would mean that the arrows would start from the top grey boxes outlining "challenges", and then move downwards from layer to layer. Consider also including another orange box titled "prevention" as another "policy goal".	The direction of the arrows that are used to indicate the logical relationships between different level of policy domains that are based on IPBES guidance documents on "policy support tools and methodologies - IPBES 4 INF 14". The relationship has been clearly stated in the figure caption in the revised final draft. The 'prevention' as a policy goal is represented along with 'halting' land degradation (prevention is considered synonymous to halting).
Germany	Ch. 6	55	1527				
Yujie Wang	Ch. 6	55	1532	55	1532	Please change "the quality of land" to "land quality"	Changed as suggested.
Esther Turnhout	Ch. 6	55	1537			The connection between 6.3 and 6.4 is unclear. Also policy instruments are responses to drivers. So, how does this section work? The discussion of policy responses and instruments is quite generic. The connection to the specific issue of land degradation should be clearer (or, if such a link is absent, consider to remove the text). A final general comment about 6.4 is that I miss a systematic overview about what values are reflected (or marginalized) in the different policy instruments and how they in and exclude ILK.	The section headings have been revised based on this comments. The earlier section 6.3 (6.3 in the final draft as well) is now primarily about on the ground responses, specific to particular land use types and drivers. Agree with reviewers comments that policy instruments are a type of responses which are either enabling or instrumental responses for the most part. In the revised draft, section 6.4 [sections 6.3.4 and 6.4 in SOD] is about broad categories of enabling and instrumental responses, where the analysis is based on the effectiveness of these instruments irrespective of drivers and landuse types. So the focus is on effectiveness of enabling and instrumental responses rather than on the ground management actions in 6.4 [which is the subject of section 6.3]. Current version of 6.4 covers broad range of responses, ranging from policy instruments, institutional and governance reform, provision of anthropogenic assets and the research gaps. The text has been extensively revised to make more specific to land degradation issues. The discussion on what values are reflected or marginalised by different policy instruments incorporated in the text specifically in 6.4.2.3 and also captured in sections such as 6.4.2.2, 6.4.2.4, and 6.4.5.
Yujie Wang	Ch. 6	55	1542	55	1545	Please use consistent terms to express the same meaning, such as "national level" and "state level", and "level" and "standards"	Corrected for consistency where relevant, for example national level and state level. However, level and standard are different and they convey different meanings as the first is related to planning mechanism and the second is about standards. The ILK type responses are exclusively dealt in sections 6.4.2.2 and 6.4.2.4.
Yujie Wang	Ch. 6	55	1546	55	1547	I think this sentence is incomplete. Please double check.	Corrected for clarity. Now the sentence reads as: " Planning is a legal response function according to the principle of subsidiarity and the division of powers between public authorities (Dumanski, 2015; ESPON 2013 Programme, 2012). This kind of legal response allows authorities to manage land uses. Land planning and associated zoning enable the division of land based on privileged users by the authorities (natural areas, agricultural areas, urban areas- housing density/urban growth limit, cluster zoning/obligation to build in continuity), and establishing legal or contractual conservation easements (Dissart, 2006; Hassan & Lee, 2015; Verhage, 2002; Yucer et al., 2016)"
	Ch. 6	56	1557	56	1564	International law is mentioned here, but only briefly. But as said earlier, there are many other international law issues that could have an impact on land management, for instance trade agreements, international conventions on climate, biodiversity and desertification, human rights, guidelines on governance of land tenure and others.	Additional relevant international laws have been cited here (e.g., Ramsar convention, EC and UNCCD directives). But do not elaborate the discussion here because of the local and national scope of the chapter. More discussion on international law is available in Chapter 8 sections.yy, which has been appropriately cross-referenced in the text.
UNCCD SPI (and N. van Haren, A. Hilgers)	Ch. 6	56	1558	56	1559	This sentence is linguistically incomplete and doesn't add to the text as it is not a self-explaining publically known example	Clarified by adding (Hannam & Boer, 2001) in the line 158 [SOD] for completeness. Deleted the text "woodland and forest in UK (Raum, 2017)" as suggested by the reviewer.
Yujie Wang	Ch. 6	56	1563	56	1563	Please change "mountain, e.g." to "e.g., mountain".	Corrected.

Markus Giger	Ch. 6	58	1643			<p>6.4.1.2 Rights-based instruments and customary norms: this chapter should also discuss also the importance of the common property regimes for many land use systems, how they have been weakened in the past and what research has found as principles to manage them. It is mentioned in the subchapter 6.4.1.3, though, but should also have a place here. Reference: Ostrom, Elinor. Governing the commons. Cambridge university press, 2015.</p> <p>Links of human rights with trade system could be referenced here: Cottier, Thomas, Joost Pauwelyn, and Elisabeth Burgi. Human rights and international trade. Oxford University Press, 2005.</p>	The work by Ostrom and others on common property regimes has now been incorporated in this section (6.4.2.2) as well. The link between human rights and trade has also been made with two citations Cottier et al. (2006) and Mechlem (2006).
UNCCD SPI (+ Nathalie van Haren and Nathalie van Haren)	Ch. 6	58	1643	64	1917	<p>In the context of "Rights-based instruments and customary norms"; "Economic and financial instruments"; "Social and cultural instruments" and the governance of land and sustainable land management, it is important to mention the "Voluntary Guidelines for Responsible Governance of Tenure of Land, Forests and Fisheries in the Context of National Food Security" (VGGT). The VGGT are a new international legal instrument, which was adopted unanimously in 2012 in the United Nations Committee on World Food Security (CFS). The document is a soft law instrument that does not create new legally binding obligations to states or responsibilities for private actors, but applies existing standards for governance, particularly including human rights standards, to the management of land. The following article describes in the first part the new instruments and its relevance to all actors involved in land governance issues. In the second part the article describes which implementation activities and follow-up actions have been taken by the different stakeholders since its adoption in 2012. See VGGT at CFS: http://www.fao.org/cfs/home/activities/vgg/en/ ; See Michael Windfuhr: https://link.springer.com/chapter/10.1007/978-3-319-42508-5_15; see Charlotte Beck et al: http://www.sciencedirect.com/science/article/pii/S2095633915000362</p>	The suggested reference and relevant text has been added in the section 6.4.2.2.
Liu Jinlong	Ch. 6		1643			<p>section 6.4.1.2, very vague, please add more about customary norms, they are lot in many many countries.</p>	Additional text (limited) has now been added in this section.
UNCCD secretariat	Ch. 6	58	1654	58	1658	<p>The statement is no longer correct. Within the framework of the Land Degradation –Target setting Programme that is head up by the Global Mechanism of the UNCCD, http://www2.unccd.int/actions/ldn-target-setting-programme) 110countries have been given with information to establish baseline for the 3 indicators monitor achievement on LDN (Orr et al., 201&</p>	Changed and the suggested reference has been cited.
Yujie Wang	Ch. 6	58	1674	58	1674	<p>Please delete "B.W."</p>	Corrected
UNCCD secretariat	Ch. 6	58	1676	59	1686	<p>Same comment that previous one in relation to gender sensitive approach as principle guiding the achievement of LDN according to Barron et al. 2017</p>	Incorporated in the revised text in section 6.4.2.2
UNCCD secretariat	Ch. 6	58	1688	58	1672	<p>Protecting human rights is one of the principle adopted by the SPI scientific conceptual framework of Land Degradation Neutrality (Orr et al., 2017 also in http://www2.unccd.int/sites/default/files/documents/18102016_Spi_pb_multipage_ENG_1.pdf). W want to see the author refer to this most updated refrence</p>	Cited the suggested reference and relevant text is Included in this section 6.4.2.2.

Markus Giger	Ch. 6	59	1702			This chapter might be developed to discuss the importance of regulation of economic drivers at global level. The importance of economic drivers could be referenced here: Liu, Jianguo, et al. "Framing sustainability in a telecoupled world." Ecology and Society 18.2 (2013). and Liu, Jianguo, et al. "Coupled human and natural systems." AMBIO: a journal of the human environment 36.8 (2007): 639-649.	The responses to global scale indirect drivers including globalization, population growth, migration, etc are incorporated in section 6.4.1 (responses to indirect drivers).
Astrid Hilgers	Ch. 6	59	1703	63	1866	Only attention on polluter pays and PES. All public finance schemes should be included. Where are the financials that don't want to be related to deforestation of having an ambition for NNL. Or financials that want to invest in natural capital. landscape related work should also be included, comming foth of chapter 1 page 18 on landscapes.	In the revised draft (final draft), new sections on the natural capital accounting [in 6.4.2.3], corporate social responsibility [in 6.4.2.4], and integrated landscape approach [6.4.3] have been added to assess the LDR responses based on these tools/approaches.
Caroline van Leenders	Ch. 6		1703			Only attention on polluter pays and PES. All public finance schemes. Where are the financials that don't want to be related to deforestation (UN-PRI working group on deforestation etc) or having an ambition for NNL. Or financials that want to invest in natural capital. Where is de landscape related work? See http://www.rvo.nl/sites/default/files/2016/10/Finance%20for%20one%20planet%202016%20-%20CoP%20Financial%20Institutions%20and%20Natural%20Capital.pdf and scaling-up-investment-finance-for-integrated-landscape-management-challenges-innovations	Included as a part of Natural Capital Accounting (NCA) in section 6.4.2.3 as well as at landscape level approach to land degradation and restoration (Section 6.4.3).
Esther Turnhout (and Astrid Hilgers)	Ch. 6	59	1725	59	1726	There is a lot of literature on how PES is not attractive because it exacerbates inequity, the text should reflect this (and coordinate with chapter 8 on this point)	The text on PES has been extensively revised and now it captures a balanced view on PES as an economic instrument. The content from Chapter 8 has been transferred to Chapter 6. The synthesized text is incorporated in the revised version (see section 6.4.2.3).
Yujie Wang	Ch. 6	60	1730	60	1731	I think that 'price-based' and 'market based' are not in a parallel relationship. Please double check this line.	Checked and revised the sentence.
McAfee, Brenda	Ch. 6	61	1786	61	1788	A succinct elaboration of the concept of intrinsic motivation crowding-out would be helpful here.	Intrinsic motivation crowding out is succinctly reviewed and incorporated in a paragraph within the section 6.4.2.3.
Douglas, Diane	Ch. 6	61	1804	61	1806	Awkward sentence: The literature on costs of land degradation indicates that the costs of land degradation at the global level are very high and the costs of actions are often very low than those of inaction (Giger et al., 2015). Consider rephrasing to, "... costs of actions are often lower than those of inaction"	We rephrased the sentence.
Markus Giger	Ch. 6	61	1806			The sentence is not complete. Should read: ..the costs of actions are often very low <i>compared to those</i> of inaction	The sentence has been rephrased.
Astrid Hilgers	Ch. 6	61	1812	62	1853	please pay attention for role of private investments in the cases	Included as a part of Natural Capital Accounting (NCA) in section 6.4.2.3 as well as at landscape level approach to land degradation and restoration (Section 6.4.3).
Caroline van Leenders	Ch. 6		1812			Where is there role or attention for (private) finance in the cases? See also http://peoplefoodandnature.org/blog/four-lessons-for-private-sector-engagement-from-the-sustainable-landscapes-partnership/	Included as a part of landscape level approach to land degradation and restoration (Section 6.4.3).
Douglas, Diane	Ch. 6	62	1816	62	1821	Valueable points on Sub saharan Africa are made here, but consider the full complexity of transitioning from existing economies in this region -- many areas do not have roads, and rural people do have resources available to access to markets. Considerable investment in infrastructure is needed, as well as providing economic opportunities and incentives for people in rural areas.	Thank you for the comment. Agree with the comment.
Esther Turnhout	Ch. 6	63	1867			This subsection (6.4.1.4) contains a lot of normative language (should) without clear scientific underpinning. Consider rephrasing	The section has been thoroughly revised to change the tone of the language and complemented with additional relevant analysis.
Yujie Wang	Ch. 6	63	1878	63	1878	please change 'scales' to 'levels'.	Changed.

Esther Turnhout	Ch. 6	64	1918			It seems that this subsection is not an assessment of the effects of instruments but an analysis from a specific perspective. The context is important and partly takes care of my earlier comment about what values are reflected in policy responses and instruments, but the logic of the chapter is a bit difficult to follow.	This sub-section is merged with 'social and cultural instrument' and revised to make the text as assessment text by minimising 'normative language'. The cultural perspective is kept in the revision to reflect the value of context as suggested in the comment. The specific value captured by particular instruments has been specifically mentioned in section 6.4.2.3 (within PES and biodiversity offsetting).
Esther Turnhout	Ch. 6	65	1989			Similar comment, I have lost track of the logic of the chapter. Why are governance responses (6.4.3, 6.4.4 and 6.4.5) separate from instruments (6.4.1)? Particularly in 6.4.3, 6.4.4 and 6.4.5 there is a lot of text that refers to support tools rather than instruments	Appreciate the comment. The title has been revised to reflect the essence of scoping document that indicates assessment of responses from these perspectives. Earlier section 6.4.3 is now part of social and cultural instrument (section 6.4.2.4); the research and technology development (section 6.4.4) and institutional reform (section 6.4.5) are presented to make the chapter logic more clearer in the final draft.
UNCCD secretariat	Ch. 6	71	2002	72	2218	Among initiatives to support capacity building to achieve Land Degradation Neutrality, please make reference to the Land Degradation Neutrality Target Setting Programme conducted by the Global Mechanism of the UNCCD that is currently supporting 110 countries to set voluntary national targets on LDN (see more information at: http://www2.unccd.int/actions/ldn-target-setting-programme	This reference has been incorporated in several places in the chapter. The specific point on capacity building is now covered in Chapter 8 (text shifted from Chapter 6 to Chapter 8 during Rome meeting). A link has been established in Chapter 6 in section 6.5.
Astrid Hilgers	Ch. 6	68	2081	71	2193	Need for financial governance as well; coordination structures	The responses based on financial governance or private sector initiatives have been incorporated in the newly developed sub-sections in 6.4.2.3 (natural capital accounting) and 6.4.2.4 (corporate social responsibility).
Yujie Wang	Ch. 6	69	2101	69	2101	This figure is not clear, please improve it.	This figure has been replaced by a figure that is more appropriate for landscape transformation in the revised section 6.4.3.
Caroline van Leenders	Ch. 6		2104			there is a need for a financial governance structure as well in landscapes. See http://peoplefoodandnature.org/publication/business-for-sustainable-landscapes/	The responses based on financial governance or private sector initiatives have been incorporated in the newly developed sub-sections in 6.4.2.3 (natural capital accounting) and 6.4.2.4 (corporate social responsibility). The revised text on landscape governance has been part of integrated landscape approach (section 6.4.3) in the final draft.
Astrid Hilgers	Ch. 6		2131			Next to multilateral banks, private investment should also be mentioned.	Private sectors has been added as suggested in the final draft
Caroline van Leenders	Ch. 6		2131			Why only mention development banks. All financial institutions are depending on biodiversity and should be involved.	Private sectors has been added as suggested in the final draft
Yujie Wang	Ch. 6	70	2152	70	2152	Please delete 'C.' from this line.	Corrected.
NFP of China	Ch. 6	71	2207	71	2210	change "People's Republic of China" to "the People's Republic of China"	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). This comment has been accommodated in Chapter 8
Germany	Ch. 6	72	2211	72	2211	If referring to the FAO LADA project, replace "is" with "was". The sentence should read: "... substantial attention was given to training, ..." Rationale: After five years of activity, the LADA project has closed.	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). The sentence as such no longer exists in chapter 8, as information was consolidated with existing text.
Gardner	Ch. 6	72	2243	70	2401	As the Ramsar Convention is one of the key stakeholders for this assessment, and as the Ramsar Convention's Strategic Plan contains targets on restoration, I recommend that 6.5 have a subsection on the Ramsar Convention (or at least mention the Convention along with the UN Conventions).	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). Ramsar Convention and its Strategic Plan are now covered in section 8.4.1
Elizabeth Hess	Ch. 6	72	2243	74	2278	The new Ramsar strategic plan (2016-2024) could be included in section 6.5. The new plan has a cross walk between the plan's targets and the Aichi targets.. See http://www.ramsar.org/sites/default/files/documents/library/4th_strategic_plan_2016_2024_e.pdf	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). Ramsar Convention and its Strategic Plan are now covered in section 8.4.1
Astrid Hilgers	Ch. 6	72	2243	77		Good last Section to put things in perspective.	Thank you.

Elizabeth Hess	Ch. 6	72	2245	72	2245	Would be nice to include Ramsar here since it deals directly with the wise use of wetlands and it is not included in the list of conventions listed	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). Ramsar Convention and its Strategic Plan are now covered in section 8.4.1
Yujie Wang	Ch. 6	73	2259	73	2260	This figure is not clear, please improve it.	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). The figure has been revised in the final version of Ch8 to make it more clear (please see Section 8.4)
Markus Giger	Ch. 6	73	2261			This table is useful, but would need to be better commented, and maybe placed more prominently at the beginning of chapter 6.4., where it could give an entry point to talk also at drivers at global level and efforts to address those.	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). This table now features in Section 8.4 where it is deemed more fitting.
Germany	Ch. 6	74	2266	74	2266	Please replace "exotic" by "non-native" or "alien"	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). This substitution has been done in Section 8.4.1 (changed to non-native).
Caroline van Leenders	Ch. 6	74	2285			Greening finance / financing green organised at COP 13 of CBD. See http://www.changemagazine.nl/klimaatkennis/biodiversiteit/greening-finance-financing-green	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). This topic is now covered in section 8.3.3.
Germany	Ch. 6	74	2290	74	2290	If "COP 13" is referring to the recent CBD COP, then include 'CBD'. It should read "CBD COP 13 also included ..."	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). This comment has been accommodated in Section 8.4
Germany	Ch. 6	74	2302			Aichi Target 15 in this Table provides a differentiated approach towards analysing the progress made under this target. This approach contradicts the overall negative approach outlined in the SPI key message D2 (see SPM, page 8). It would be helpful to consider some re-wording of key message D2 based on the more differentiated perspective provided in this Table.	For SPM to consider (the comment is passed on to SPM writing team), so no action is taken here in the text.
UNCCD secretariat	Ch. 6	76	2304	76	2330	This section could be enriched by considering the following documents that analyze the interactions among SDGs and how sustainable management of the land and restoration of degraded land contribute to their achievements: UNCCD 2016 A natural fix: A joined-up approach to delivering the global goals for sustainable development (http://www2.unccd.int/publications/natural-fix-joined-approach-delivering-global-goals-sustainable-development) and Akhtar-Schuster et al. 2017 Unpacking the concept of land degradation neutrality and addressing its operation through the Rio Conventions. Journal of Environmental Management 195:4-15	Section 6.5 of the SOD has been moved to Chapter 8 as per the agreement made in the third author meeting to avoid the overlapping scope between chapter 6 (national and local) and 8 (international/regional). These references were added in 8.4
Germany	Ch. 6	76	2315	76	2330	The differentiated information provided here on trends towards achieving SDG 15 targets may support a more differentiated wording of key message D1 of the SPM (see page 8). Please consider some re-wording of key message D1.	This is a comment to SPM not the Chapter. SPM has been revised extensively.
Thomas Brooks	Ch. 6	76	2317	76	2317	Add citation to https://www.nature.com/articles/sdata20167	This has not been considered relevant for this section

Astrid Hilgers	Ch. 6	76	2327	76	2330	The source of this statement (Pretty 2007) is not referring to conservation agriculture, but to sustainable agriculture in general and to organic farming specifically. Delete Conservation agriculture, OR name all responses, as agroecology, agroforestry, conservation agriculture, sustainable agricultural practices indicated on page 11 line 287	This has been changed to sustainable agriculture
UNCCD SPI (Nathalie van Haren)	Ch. 6	76	2327	76	2330	BIAS towards conservation agriculture. The source of this statement (Pretty 2007) is NOT referring to conservation agriculture, but to sustainable agriculture in general and to organic farming specifically. Delete Conservation agriculture, OR name all responses, as agroecology, agroforestry, conservation agriculture, sustainable agricultural practices indicated on page 11 line 287	Revised the text to be more accommodative to other forms of responses as well, i.e. agroecology
Elie Kodsi	Ch. 6	76	2331	2347	164	The conceptual framework for Land Degradation Neutrality, developed by the Science Policy Interface of the UNCCD, provides a practical approach for countries to assess progress towards halting and reversing land degradation. This is a positive development that should be better reflected in the narrative/different sections of the chapter. This is particularly true since LDN is now the guiding principle for UNCCD implementation, and country parties have started developing voluntary LDN targets. Even though significant barriers (listed in the chapter) face the achievement of LDN by 2030, this is a positive aspirational goal that could be explained in simple terms to policy-makers to mobilize national efforts and resources to halt/reverse land degradation. The progress achieved with the LDN agenda over the past 2 years is not adequately reflected in the chapter.	More information added to table on SDG 15 progress
UNCCD secretariat	Ch. 6	76	2331	77	2351	Most of the text of this section is outdated and need to be thoroughly reviewed in the light of decision taken by the UNCCD at COP12, particularly decision 3/COP.12) where a definition of land degradation neutrality is adopted and the outcome of the work of the SPI on development a scientific conceptual frameworks of Land degradation Neutrality Barron et al. 2017 http://www2.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality)	not relevant to Aichi target
Steve Prince	Ch. 6		2331		2331	Could add "zero net " in the title so it will catch the eye more easily	not relevant to Aichi target
UNCCD SPI (Nathalie van Haren)	Ch. 6	78	2356	78	2358	Bias towards Conservation agriculture, please include agroecology as recognised as a sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 "Towards alternative paradigms" and the other responses as indicated in chapter 6 on page 11 line 287: agroforestry, sustainable agricultural practices	Changed to sustainable agriculture
UNCCD secretariat	Ch. 6	79	2388	79	2401	It is advisable that the authors review the outcome document of the Global Symposium on Soil Carbon held in March 2017 co organized by the ITPS, FAO, IPCC, UNCCD, SPI and WMO on the contribution of good soil carbon management practices to mitigate and adapt to climate change	section removed
UNCCD SPI (Nathalie van Haren)	Ch. 6	79	2394	79	2396	Bias towards Conservation agriculture, please include agroecology as recognised as a sustainable agricultural practice in Chapter 2, paragraph 2.3.2.1 "Towards alternative paradigms" and the other responses as indicated in chapter 6 on page 11 line 287: agroforestry, sustainable agricultural practices	Changed to sustainable agriculture
Virginia Meléndez Ramírez	Ch. 6	79	2401	79	2401	You can add conclusions of the chapter.	The comment is not relevant as per chapter scope.
Eila Gendig	Ch. 6	80	2402			References - Can they all please be sorted alphabetically? And not pre-sorted by sub-chapter?	A clean 'Reference section' has been developed for the final draft by addressing all the comments.

Yujie Wang	Ch. 6	80	2404	80	2404	Please check the author's name '2 Chirwa, P.W.'	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	80	2407	80	2407	Please check "Ash, N. et al. (2010)" and uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	81	2479	81	2493	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Elizabeth Hess	Ch. 6	82	2509	86	2734	Please check order of the reference sections to make sure they align with order in report. i.e., urbanization, wetlands, invasives, soil quality, water quality. Vs. urbanization, invasives, wetlands, water quality, soil quality	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	83	2561	83	2562	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	83	2599	83	2600	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Elizabeth Hess	Ch. 6	84	2626	84	2626	not sure why this is referred to wetland degradation vs responses to wetland conversion to match others	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	84	2629	84	2632	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	84	2644	84	2645	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	84	2651	84	2652	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	85	2657	85	2660	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	85	2681	85	2690	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	86	2709	86	2728	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	86	2721	86	2721	Please double check the publication year, '20011a'.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	86	2736	86	2751	Please uniform the reference style.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	90	2949	90	2949	Please complete the reference information.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	93	3068	93	3070	Please delete "樊杰 孙威 杨振山 凡凡 陈东 关注主体功能区--中国“十二五规划”新的空间规划探索与实践”.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	100	3432	100	3432	Please complete the reference information.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	112	4088	112	4089	Please delete "樊杰 孙威 杨振山 凡凡 陈东”.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.
Yujie Wang	Ch. 6	119	4451	119	4451	Please complete the reference information.	A clean 'Reference section' has been developed for the final draft by addressing all the comments.