Comment No	From Page	From Line	To Page	To Line	Comment	Response
24712	0	0	0	0	Executive summaries did AFAIK never have an index in IPCC reports, e.g. "1.1 Executive Summary" should be "Executive Summary". Please fix that in all next drafts. Otherwise any automatic processing of drafts, Text Analysis Tool (TAT), becomes very difficult. All WGs should stick to the same rules. The same is true for the categories of comments and for the structure of the spreadsheets in which comments are returned to the authors and review editors. REtool should be able to import from a unified spreadsheet. This would also simplify the publication of the comments once a report is completed. [Andreas Fischlin, Switzerland]	
24226	0	0	0	0	General comment on the entire report: The authors and editors of all seven chapters of the IPCC SRCCL should be commended on a strong FOD. Noting this excellent start, the comments below should be considered in a constructive light as our (the UNCCD secretariat) interest is to see this report have the largest impact possible. In making comments, the UNCCD secretariat has followed the review guidance provided by the IPCC. However we have also strived to help the authors make what is presented in these chapters more readily considered by UNCCD country Party policy makers in our next COP 14 (Fall 2019). The often overlooked key to this is recognizing that all Rio convention policy decisions are made by concensus and all such decisions in one Conference of the Parties (COP) must therefore build off past COP decisions. This means the text MUST contain "entry points" that leverage past UNCCD policy decisions. Considering the sheer number of past policy decisions, this might seem daunting. Fortunately, in the case of the UNCCD, in COP 13 (September 2017), through decision 18/COP.13, country Parties decided to endorse the Scientific Conceptual Framework for Land Degradation Neutrality (LDN), calling upon Parties to consider the guidance therein and observe its principles. LDN is the new paradigm for addressing land degradation and desertification, a no net loss approach which seeks to maintain land-based natural capital and the ecoystem services that flow from it. The framework was rigorously peer-reviewed in four phases and was designed to be maximize synergies among the Rio conventions as well as SDG 15 Life on Land and its target 15.3, which is LDN. We strongly encourage the authors of all chapters to fully consider the conceptual framework, identifying entry points and ensuring the text references the framework accordingly. In this way both the underlying document and the SPM will have entry points which can be directly considered by UNCCD policy makers. Considering that 118 countries are setting LDN targets and co	

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24230	0	0	0	0	General comment on the entire report: The LDN response heirarchy would help unify the responses to land degradation in a generic way. This would help the entire report be directly synergistic with both UNCCD decisions (18/COP.13), the LDN scientific conceptual framework (see p. 61 in https://www.unccd.int/sites/default/files/documents/2017- 08/LDN_CF_report_web-english.pdf and Fig 4 in https://doi.org/10.1016/j.envsci.2017.10.011) and the recently published IPBES global assessment on land degradation and restoration (https://www.ipbes.net/assessment-reports/ldr) [Barron Joseph Orr, Germany]	Accepted, LDN farmework discussed in detail in Chapter 4, and also from the implementation perspective in Chapter 3.
8688	0	0	0	0	All chapters are 2-3 times longer than the approved outline and need to be cut subtantially. There's large overlap among the chapters. Section 1.6 of chapter 1 aims to provide an overview of each chapter, and should be used to guide the extent of each chapter and avoid repetition. [Delphine Deryng, Germany]	Noted and kept in mind.
8690	0	0	0	0	The exact wording of Article 2.1(a) of the Paris Agreement is: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". The wording "well below 2°C" and reference to the "1.5°C temperature limit" need to be accurately reflected in every mentions of the Paris Agreement temperature goal. [Delphine Deryng, Germany]	Accepted. References to the Paris Agreement now checked and harmonised
20764	0	0	0	0	"LBM" chapter 1 page 3 line 17: too many acronyms are actually detrimental to what these reports are trying to achive. A real plague detrimental to conveying the right message. We are not trying to create yet another club with its own coded language, but rather make science findings more accessible. I think there should be an effort made to remove as many acronyms as possible, leaving only those of institutions (organisations, conventions etc). If you really want to shorten the expressions, a nickname capturing the main idea would be more powerful. "Land climate mitigation" would be easier to read and convey more meaning to the reader. I would suggest going through all acronyms of the report with a fine toothcomb to harmonise this and remove as many acronyms as possible. [Emmanuelle Quillerou, France]	Acronym-use reduced
20768	0	0	0	0	I would replace "land mitigation" with "land climate mitigation". This is because when working under the other conventions (biodiversity or land degradation), mitigation has a different meaning. I would make the climate connection explicit here. [Emmanuelle Quillerou, France]	Noted. Term used most frequently is 'land-related responses'
21230	0	0	0	0	Too much abbrevations may be tiring for the readers. [Erhan Akca, Turkey]	Accepted. Abbreviations limited throughout report
21234	0	0	0	0	References are mainly from Western World please use also eastern references. [Erhan Akca, Turkey]	Accepted. More literature has been included
21240	0	0	0	0	references are not in chronological order [Erhan Akca, Turkey]	Noted. References now according to IPCC guidelines
21242	0	0	0	0	There are too many repetitions about the importanace of land, climate and water in the text [Erhan Akca, Turkey]	Noted and repetitions removed where applicable

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21244	0	0	0	0	Some abbrevations such as Mkm2 can be confusing to socail sceintists it is better to provide as Milliom km2 [Erhan Akca, Turkey]	Noted. Abbreviations in accordance to IPCC guidelines
21246	0	0	0	0	Instead of repetitions striking figures and maps will make report more understandable by wide range of audience. [Erhan Akca, Turkey]	Noted. Figures and maps used where applicable
21248	0	0	0	0	For well-known facts no need to use that much reference [Erhan Akca, Turkey]	Noted
21252	0	0	0	0	Problems are well defined however sugegstions to solutions are not satisfactory ie well-known common suggestions are provided [Erhan Akca, Turkey]	Noted. More information on solutions provided throughout the chapters, especially in Ch6 and Ch7
21254	0	0	0	0	Models are not understandable for majority of the decisions makers in developing countries even they thought models are criticizing their decisions and they refuse to use models. [Erhan Akca, Turkey]	Noted, and use of models examined
21258	0	0	0	0	Providing map is very crucail for guidinf policy makers to see the situation in their region [Erhan Akca, Turkey]	Noted. Maps used where applicable
21264	0	0	0	0	Why never mention about birth control [Erhan Akca, Turkey]	Noted. Population as a driver is addressed in the report
21272	0	0	0	0	Poverty vs climate change and desertification have been several times repeated [Erhan Akca, Turkey]	Noted. Repetitions checked and removed where applicable
21288	0	0	0	0	Introducing new unnecessary terms breaks the links between old nad new literature such as anthromes please let me knwo what is the diffrenece between human used areas and athromes. [Erhan Akca. Turkey]	Accepted. Anthromes defined in Ch6 and in glossary
25320	0	0	0	0	The report is focused on 2°C, almost ignoring the fact that in the Paris Agreement governments committed to pursue maximum warming of 1.5°C. The framing of the report in Chapter 1 even puts the focus on capping warming AT or below 2°C (see the condenced narrative in Chapter 1, page 8). This gap between the focus of this report and the Paris Agreement goal is a fundamental problem that must be fixed. Otherwise the report will be outdated before it is out from the printers. The report needs to be consistent with the Paris agreement goals and build on the findings of the IPCC Special Report on 1.5°C, which will make it clear that the difference between 1.5°C and 2°C is substantial for the land sector too, both in terms of impacts and emission reduction pathways. [Kaisa Kosonen, Finland]	Most published studies reported concentrate on 2oC; refernces to the recent 1.5oC report now enhanced. However, while reference to 1.5oC is important, warmer 8even high-end) scenariosmust also be considered since so far no evidence available that the Paris Agreement will be achieved.
25322	0	0	0	0	The report should build on the findings of the 1.5°C special report. It would be helpful, for example, if the four 1.5°C pathway archetypes introduced in the SR15 report would be unpacked and analysed further for the land-use implications in this report. [Kaisa Kosonen, Finland]	Noted. Report builds on findings from SR1.5 but SRCCL has a different focus and so cannot expand on all issues
25324	0	0	0	0	For improved readability, please streamline the use of different units. Where ever possible, present the values as (giga) tonnes of CO2 or CO2eq, at least in brackets. [Kaisa Kosonen, Finland]	Noted and harmonised in the latest draft
25326	0	0	0	0	What are the most important things for policymakers to do between now and 2030 to make land-use Paris compatible? It would be important for the SPM to be able to answer this question. Currently it is difficult to distill from the chapter summaries. [Kaisa Kosonen, Finland]	Accepted and key messages lifted to SPM and Executive Summaries

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20184	0	0	0	0	The formatting of chapters should be consistent in citation format, capitals in titles and subtitles (capitalizing the first letter of the words), hyphenation, italicization, and so on. [Sabit Erşahin, Turkey]	Accepted
16006	0	0	0	0	UHI adaptation strategies have not been discussed in chapter 2. I would suggest to add it [Tiziana Susca, United Kingdom (of Great Britain and Northern Ireland)]	Urban heat island is assessed in chapter 2, and cross-chapter box on climate change and urbanisation added
16008	0	0	0	0	general: the report is quite inhomogeneous in terms of language used and in terms of literature review. Some chapters are focused on literature published after the publication of the 5AR and some other include a vast amount of literature published before the 5AR (e.g., chapter 4). This makes the structure of the 6AR quite patched [Tiziana Susca, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Chapters checked to ensure they are assessments (instead of literature reviews). Also checked to ensure assessment is of literature since AR5
10346	0	0	0	0	The report almost always talks about bioenergy derived from dedicated energy crops. While this is true, other feedstocks, like MSW, crop residues, livestock residues etc deserve a discussion as well. Especially because generally, and if managed sustainably, they do not compete for land with other uses. Chapter 1 should acknowledge in its framing that agriculture is a significant contributor to greenhouse gas emissions but is also a fundamental part of the solution to climate change. Agricultural sectors not only can reduce climate change impacts and achieve the objective of the Paris Agreement, but can also reduce poverty, eradicate hunger and deliver on the 2030 Agenda for Sustainable Development. Climate change, hunger and poverty should therefore be tackled together. [Zitouni Ould-Dada, Italy]	Role of agric as "problem" and part of the "solution" better flashed out in revised chapter 1.
25026	0	0	300	70	The use of decision-trees would largely increase the impact of information contained in the report. Indeed, the amount of information provided is huge, is scattered across 6 chapters and not always provides for a clear understanding. Decision trees can be generic, e.g. for identifying the GHG inventory categories impacted by a human activity (this is of fundamental importance when comparing different management options e.g. cattle beef in grazing land vs cattle beef in stall). Decision trees can be specific, e.g. when evaluating biophysical and bio-geochemicl impacts on the energy-balance (local and global) of specific actions (including mitigation actions). [Sandro Federici, Italy]	Noted and thanks for the suggestion.
8376	0		300		GENERAL COMMENT All reports are well written, clear and well structure. It was easy to me reading and understanding also the sections in which I am not expert. [Luca Brocca, Italy]	Thank you for your positive comment

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16136	0	0			Better analysis of bio-energy needed. With respect to bioenergy, the entire report seems to be mainly focussed on bioenergy derived from dedicated energy crops. While this has clearly impacts on climate land and food security, other feedstocks, like municipal solid waste, crop residues, livestock residues etc. deserve a discussion as well. This is because, if managed sustainably, they do not compete for land with other uses. They also have fundamentally different GHG accounting, since they are not specially grown for energy but rather energy is produced from them as an extra secondary use. [Lorenzo Giovanni Bellù, Italy]	Noted and bioenergy examined in detail in Ch6 to ensure balanced assessment
16146	0	0			Reference to FAO SOFO 2018 re forests. Reference to the most recent iteration of State of the World's Forests published about 2 weeks ago, would be a relevant contribution to Chapters 1, 6, and 7 http://www.fao.org/documents/card/en/c/I9535EN/ [Lorenzo Giovanni Bellù, Italy]	Thanks for suggestion, to be used where apropriate.
16762	0	0			The short title of the report requires upgrading to better reflect the content of the report. The short title as it is now: "Climate change and land" does not reflect a substantive part of the report, i.e. a good deal of chapter 1 re food security and the interactions between climate change, land and food security, all chapter 5 and a good deal of chapters 6 and 7. Moreover, it does not reflect the main fundamental reason why land is used and land degradation and desertification occur, that is to generate human welfare in general, and food security in particular, through the production and consumption of land-based goods and services. So, a much better suited and more informative title should be: "Climate change, land and food security". [Lorenzo Giovanni Bellù, Italy]	Noted. The title was agreed during an IPCC plenary and cannot be changed
15310	0				to format et al.in italics [Carmela Cascone, Italy]	Editorial
2832	0				Not surprisingly for a first draft written by many authors, coherence is still low The combination of chapters' titles is telling a good story, but the content of the chapters is not referring enough to this overarching frame. This results in a loose series of chapters. (1) should better prepare the following chapters, be more exploicit on Vision, Mandate, and better summarize results, and (7) should bring together all chapters' results. Yet (2), (3), (4), (5), (6) unsatisfactorily prepare the ground for results on what works in dealing with risks and complexity, for solutions in organizing Transformation towards SD/2030 Agenda. Efforts needed towards 'One voice'. [Cordula Ott, Switzerland]	Noted, thanks. Chapters have established more cross-chapter links and working towards harmonisation
2834	0				Coherence builds on a systemic approach and acommon conceptual base. This is a bit lacking. Especially, there seems to be a weak understanding on how to integrate natural and social sciences; or: how to consider social sciences within an evidence-based driven assessment. This reduces coherence and creates many overlaps. The broader inclusion of approaches of a sustainably science community to Transdisciplinarity, Sustainability Governance and Transformation would help. Several comments on (1) indicate how and where to strengthen the line of arguments. [Cordula Ott, Switzerland]	Good points and the comment points to a general lack of published studies in the literature that cross well between natural and social sciences

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2836	0				Major solutions for SD emerge in societal processes. However, the idea to implementing response options and developing policies within the science-society interface is weakly developed. The terms actors, farmers, stakeholders, seldom show up, and then mostly as part of the problem and not as part of the solution. Actors and agency should be a theme covered within all chapters, in order to prepare (7/7.5.) with how to deal with risk and uncertainty and develop policies and implementation. [Cordula Ott, Switzerland]	Accepted, and societal processes examined throughout report
2838	0				The document should digest the information available, and present it in a processed way to fulfill its mandate, i.e. providing science-based evidence to inform decision-makers on what works. Be more clear and focused on conclusions ! Especially, show what works or what we know on what works – within each Chapter and in tackling the interlinkages of issues of all Chapters. GAian (1) and (7) shouold be very explicit on results on how to proceed. [Cordula Ott, Switzerland]	Highlighting possible solutions to the challenges outlined in the report is important for each chapter; however, in many cases clear identification of "what works" is not unequivocall possible
2840	0				Less could be more! Especially, the whole document will have several hundred pages of complicated matters. How to digest? While the general structure of the chapters is concise, a more aligned structure within the chapters could both, improve the line of arguments and shorten the text – by reducing number of paragraphs within chapters and reducing duplication between chapters. [Cordula Ott, Switzerland]	The SOD has strongly revised chapter structure for most chapters, aiming to provide a better flow. Als, more/better cross-referencing between chapters included
2842	0				Partially, the sentences in the text are stringed together in an incoherent way. In addition, statements resulting from a global perspective and those resulting from a local perspective sometimes loosely follow each other without differentiation. [Cordula Ott, Switzerland]	Language checked in all chapters; will continue to be done until final submission.
26060	0				There are very different ways of describing past IPCC findings, e.g., per section, in the introduction, in a specific box; explicitly mentioning IPCC chapters and reports, only referencing them. This need to be adjusted consistently. [Hans Poertner and WGII TSU, Germany]	Accepted and harmonised
20482	0				1. some subheader title is too long to convenently look through the content. [Huai Jianjun, China]	Accepted. Sub-section headings simplified throughout where appropriate
20484	0				 There are much short formation of termes or organization names appearing in the texts without necessary explaining at the firsrt time. [Huai Jianjun, China] 	Accepted. Terms explained when first mentioned where appropriate. Terms also included and expanded in the glossary
20486	0				3. In some places, the vocabulary has not been correctly disconnected, forming the wrong vocabulary. [Huai Jianjun, China]	Editorial
20488	0				4. The form of the chart needs further refinement, because some of the frame rows of the chart do not have enough explanation or proof to quote their purpose. [Huai Jianjun, China]	Accepted

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9894	0				The use of scenarios should be coordinated across chapters and checked for consistency across Special Reports. (The choice of reference periods; pre-industrial, modern, future is an example where coordination and transparency will be useful). Such coordination will help integration of material from SRCCL into the WG reports and to the Synthesis Report. [Jan Fuglestvedt, Norway]	Accepted and coordinated
9896	0				With all the topics adressed in this SR it is important that extra efforts are put into integration and checking of consistencey across chapters. [Jan Fuglestvedt, Norway]	Accepted, will continusly work on this.
9898	0				A clear interface with SR1.5 will be helpful; i.e. referring explictely to what SR1.5 did on various issues and then taking the assessment further - which can be done here due to the scope of the report and also new literature after the cut-off date for SR1.5. The effects of and feasibility of negative emissions is a key topic where this SR can add essential synthesis and assessment. [Jan Fuglestvedt, Norway]	Accepted, whenever relevant links included.
9900	0				The use of GWP and CO2-equivalents should be considered across the chapters. As far as I uderstood, it was agreed at LAM1 to use mass units as much as possible and avoid aggregated units like CO2-eq nased on GWP when possible. If the literature gives CO2-eq and the authors have to use that, then it should be made clear i) which gases that are aggregated and ii) which GWPs are used. Values from the Second Assessment report as still being used in the literature (and in AR5 WGIII) while several updates have been published after that; e.g. IPCC AR5 WGI. A box or footnote could be considered for explaining the use of GWP and CO2-equivalents. The glossary also needs to cover this. [Jan Fuglestvedt, Norway]	Noted, GWP100 factors applied from the AR5. Chapter 1 will have a x-chapter box on scenarios.
9926	0				The report refers to pre-industrial levels. As far as I can see, this is not defined anywhere in the report. There has been discussions in the literature about adequate time periods, and SR1.5 also discusses this. So it would be useful just to state what is used in this report. Consistency across chapters on this issue should also be ensured. [Jan Fuglestvedt, Norway]	Noted, In the scenario task group, LAs agreed on using x-WG report consistent definitions, so in the SRCCL we will refer to SR15C and WG1AR6 definitions. The multi-century period prior to the onset of large-scale industrial activity around 1750. The reference period 1850-1900 is used to approximate pre-industrial GMST'. As for CO2eq,
522	0				The status of development differs among chapters. It is definitely important that all chapters are fully developed for the next review round. This refers to the clarity and correctness of the language, in particular in the executive summaries, the need to include in the glossary all terms with a specific scientifc meaning, this refers also to including reference of the executive summary to the underlying chapter. [Klaus Radunsky, Austria]	Noted. Chapters and Exective Summaries advanced substantially.
524	0				The huge number of references included demonstrates that the topics addressed by the SR on Climate Change and Land are well covered by literature. However, sometimes in particular the execiutive summaries are rather academic. In order to avoid this it is strongly recommended to underpin any suggestions/recommendations/conclusions also by examples of good practice that can be linked to specific cases/projects already being implemented. [Klaus Radunsky, Austria]	Noted: Good practice that can be linked to specific cases/projects already being implemented are described in the chapters, but there is not space in the chapter summaries to include this level of detail. Instead, references were added to the sections where these cases/projects are described

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526	0				All statements that link climate change to impacts need to be based on specific studies and the limitations of such statements need to be carefully reflected in any conclusing statements in order to avoid overstretching conclusions those. The bar of attribution need to be the same as applied by WG1 of the IPCC. Any other approach risks to undermine the reputation of the IPCC. It is obvious that based on the approach the attribution as described by the IPCC will be conservative and does not reflect the true attribution that describes the real world situation. The attribution as assessed by the IPCC will always be limited by the availability of scientific studies. [Klaus Radunsky, Austria]	Noted. All assessment is based on the available scientific literature
528	0				It is noted that in comparison with AR5 SYR and even more relevant, with SR 1.5oC, a new definition for detection and attribution has been used in the SR on Climate Change and Land. The difference is in the definition of attribution: Attribution is defined as the process of evaluating the relative contributions of multiple causal factors to a change or event with an assignment of statistical confidence (AR5) and Attribution is defined as the process of evaluating the relative contributions of multiple causal factors to a change or event with a formal assessment of confidence. The difference being: statistical confidence versus formal assessment of confidence. The difference being: statistical confidence versus formal assessment of confidence. This means: a robust quantitative assessment (AR5) versus a subjective assessment based on value judgements. This is a significant change which cannot be supported. The reason being: It opens the door for endless discussion over attribution with the risk of underming the credibility of the IPCC and finally its legitimacy. It is strongly recommended to stick to the definition as used in the AR5 and in the SR 1.5oC. [Klaus Radunsky, Austria]	Accepted. Definition of detection and attribution in SRCCL is the same as the one used in SR1.5 (see glossaries)
530	0				There is also another difference. In the AR5 there was an independent definition for Detection of impacts of climate change. This definition was: For a natural, human or managed system, identification of a change from a specified baseline. The baseline characterizes behavior in the absence of climate change and may be stationary or non-stationary (e.g., due to land-use change). In the SR on Climate Change and Land no such definition has been included. Again it is strongly recommended to be more precise and stick to that definition of the AR5, WGII for the reason, to avoid discussion what are impacts of climate change. Without such clear definition again the credibility of the IPCC is at the risk to become damaged and to lose its legitimacy. [Klaus Radunsky, Austria]	Noted. Definition of detection and attribution in SRCCL is the same as the one used in SR1.5 (see glossaries)
532	0				It is strongly recommended to reconsider all statements in the SR on Climate Change and Land that address detection and attribution and check whether they meet the requirements according to the definitions of the AR5. If authors believe - according to appropiate reasons (e.g. lack of studies, lack of data) that linkages between climate change and changes in systems might be stronger they could mention that and recommend further studies, monitoring campaigns etc. as appropriate. [Klaus Radunsky, Austria]	Noted.

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16154	0				The whole feels like repeating in several instances content touched upon in previous or subsequent chapters, which feels confusing for the reader. For instance, there is overlap and repetition between chapters 6 and 7 but not only: topics handled in section 7.3.3 are also discussed in chapter 5 (see for example section 5.9), policies listed in Table 7.2 are also discussed in Section 5.9. It is more clear for the reader if you consolidate everything you write for one topic in one place and not throughout the report, which creates unecessary dublications. Also, in chapter 1 bits of content referring to subsequent chapters are reported with no apparent rationale. Much stronger editorial inputs are needed to mainstream the content throughout the entire report. [Lorenzo Giovanni Bellù, Italy]	Accepted and repetitions removed where applicable
16156	0				All chapters of the report cite data but in a completely inconsistent way. The reader cannot understand what time period is considered as "current", what time period is thought to be "past" and what "future". Please ensure that throughout the report your data refer to the same period of time called "past", "current" and "projected". [Lorenzo Giovanni Bellù, Italy]	Accepted and harmonised
16158	0				The report lacks coherence across the chapters and especially between chapter 1 and the other chapters that deal on specific issues that are only touched upon chapter 1. Please make sure you do not use different defitinons for the same issue throughtout the report and the data you present follow the definition you select for the entire report. [Lorenzo Giovanni Bellù, Italy]	Definitions cross-checked and cross-referencing between chapters improved
16160	0				Whenever you refer to projections, please do specify how these projections have been put together, what the scenario is and in particular what does the scenario assume on economic growth (not only globally) and population growth. As it now stands projections are presented as prophecies, while the are the outcomes of strickt ceteris paribus what is analysis. [Lorenzo Giovanni Bellù, Italy]	Detail provided where appropriate and possible
16162	0				The report very frequently talks about mitigation without however specifying what time period is considered (mitigation is after all about limiting the magnitute of climate change in the long term), why mitigation is needed (what is the counterfactual for the long-term?). Furthermore, frequently mitigation options are named, without however spelling out that the target is (e.g. how much should GHG emissions be limited), when should the target be achieved and from which reference point? Continuing on this, it feels the various authors have different starting and end points in mind, which they do not spell out. [Lorenzo Giovanni Bellù, Italy]	Noted, and harmonised where appropriate and possible
16164	0				In several instances and in several chapters there is talk about food consumption. It is however not clear to what exactly consumption you refer to. Please beware that statistics on commodity markets report apparent consumption and not actual quantities of food consumed (in other words estimates of food available for human consumption) and they express it as a primary equivalent. Furthermore, it is not clear to what food the authors refer to: is it both processed food and non-processed? which exactly commodities or commodity groups are inside "food"? where is it consumed? in the household or also elsewhere? Please check the sources you are citing and make sure food is defined the same way throughout your sources and the report. [Lorenzo Giovanni Bellù, Italy]	Noted and harmonised. Definitions updated in glossary and throughout chapters

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16636	0				The report has a rather complex content, with very many interlinkages between different topics and chapters, and many topics are handeled in several chapters, with different angels. The structure could probably have been simplified, however if remaining as it is, there is a need for extensive reference to other chapters throughout the report. [Maria Kvalevag, Norway]	Accepted. Cross-chapter links added where appropriate
21102	0				We recommend that the authors of this report talk with the authors of the SR15, since many conclusions in this Land-report are relevant to the conclusions in the 1,5 degrees report and vis versa. Negative emissions seem to have an important role to reach the 1,5 degree target. This Land-report focus on the effect of most land based CDR-technologies on different on biodiversity and other SDG goals. There are also connections related to co-benefits and trade-offs on SDG goals between the two reports. It would be good if the conclusions could be harmonized with conclusions in SPM of the 1,5 degree report. Please see figure SPM 4 in the 1,5 degr. report. [Maria Kvalevag, Norway]	Accepted and links between reports strengthened
10030	0				The terms land cover (change), land use (change), and land managment are not clearly defined and used interchangeably throughout the report. However, each of the terms refer to a specific characteristic of the land surface and are not synonyms. To avoid confusion and be precise about the terms I would suggest to add a short paragraph to define the terms poperly, possibly in section '1.2.1 Scope and starting'. [Reinhard Prestele, Germany]	Accpted, we will use the terms consistently, this is an ongoing process.
27074	0				Terminology often does not follow, and sometimes clearly contradicts established terms. It would be important to use notations more consistent with usage under the FCCC/KP/earlier IPCC reports and/or cross-reference the new expressions with better established terms. E.g., it is unclear what "land use, land cover and land-use change" is supposed to be, how it is different form LULUCF (or the part of AFOLU that corresponds to LULUCF) or what the added value of introducing this new term would be. If the emphasis is on differentiating land use from land cover, then changes in both would be important (not only land use change, but also land cover change). However, it does not seem useful to refer to land use and land cover in the title, as the two are seldom clearly separable. LULUCF only mentiones "land use", but clearly, land cover is most often used as a proxy for that. Changing the acronym will not add anything in substance, but can lead to considerable confusion by obfuscating the difference in real terms (like emissions and removals) by a change in terms which may or may not implicate a change in substance. [Zoltán Rakonczay, Belgium]	Accepted. Terms streamlined with other reports and included in the glossary
27076	0				On man occasions the contents seem to be driven more by political expectations and/or "fashion", rather than objective analysis of facts. E.g. Exemplifying land based mitigation with bioenergy and BECCS whilst not mentioning reduced losses of soil organic matter seems misplaced. Similarly, [Zoltán Rakonczay, Belgium]	Noted. Assessment is based on available scientific literature
27078	0				The treatment of GHG impacts offorest management (forest remaining forest) seems superficial at best. [Zoltán Rakonczay, Belgium]	Noted. Assessment is based on available scientific literature

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27080	0				Bioenergy is invariably presented as a (land-based) "mitigation effort". This is misleading in general, and particularly wrong in the context of a report focussing on land. Whilst it is correct that bioenergy, if certan strong conditions are met, can contribute to mitigation. Notably, two key conditions for bioenergy to reduce emissions at the system level are that (i) the biomass used be "additional" (Haberl, H. et al. 2012. Correcting a fundamental error in greenhouse gas accounting related to bioenergy. Energy Policy 45 (2012) 18–23) and (ii) that the bioenergy should replace other energy sources of higher GHG emissions (and not just add to the overall energy supply or increase fossil energy use through indirect fuel use change or displace other renewables, e.g. under an overall renewables target). In the absence of these conditions, bioenergy should be assumed to be harmful, as its direct emissions (from the combustion of fuel) are equal or (possibly much) higher than those of fossil alternatives, and land benefits (increased carbon sequestration or reduce emissions form land) cannot be assumed when the biomass is non-additional. Unfortunately, neither of these conditions can be assumed to be met in general, and certainly cannot be taken for granted. Bioenergy has been a major cause of deforestation and land degradation over human history throughout the world. It remains to be a major concern in certain, mostly developing, countries, where energy poverty drives people to the unsustainable use of biomass for energy needs. The replacement of bioenergy with less polluting alternatives is a recognised project type under the Clean Development Mechanism of the Kyoto Protocol, and bioenergy projects are only accepted for mitigation if they are based on waste or, if the biomass comes from primary production, if the producing land is included in the project (making sure that the project performance takes into account additionality and eventual leakage). In more developed countries, the availability of cheaper and mo	
26470	1	1	1	1	I am eager that the text clarifies the various perturbations arising from and affecting land use, and their characteristics: circular, dynamic, complex - compared to energy based emissions that are linear, and can be measured by simple mass balances. [Jon Magnar Haugen, Norway]	Noted and taken into account when drafting the SOD
26472	1	1	1	1	I am eager that the report elaborates on various mitigation avenues in biological/circular systems: avoided emissions vs. enhanced sinks vs other forcings that are influenced by land use (e.g. albedo). Herunder the report should elaborate on the implications of reversibility and saturation in sink-based approaches: thus they would not be equivalent to avoided stock- emissions while they might be equivalent to avoided flow-emissions. What are the implications for policies, priorities, metrics? [Jon Magnar Haugen, Norway]	

Comment No	From Page	From Line	To Page	To Line	Comment	Response
26474	1	1	1	1	Elaborate more on soil-based solutions, obstacles and how to make them work and be successful. Some figures indicate that the sequestration potential of managed soils is modest, and hampered by the problems of saturation and reversibility. Part of the reason for this impression is that soil formation processes are slow, while degradation can be rapid. Another reason is the law of big numbers, where a small increase is difficult to measure. However, soil - based sollutions have big advantages: they are helpful for climate mitigation, adaptation, water capacity, productivity, ecosystem integrity. [Jon Magnar Haugen, Norway]	Noted and assessed in Ch6
24582	1	1	1	1	I've confined my comments to just those parts of the report that talk about bioenergy and BECCS. In general, this report does a far better job of discussing the problems with bioenergy and BECCS than the "1.5" report did. However, it is still shocking to see so little discussion of the emerging literature on net carbon emissions from bioenergy alone, and the unfeasibility and scaling issues of BECCS. Given the big role that mitigation in the land sector is supposedly going to play in NDC's, you have a responsibility to explain to policymakers what is going to work, and what's not. I didn't have time to read the report thoroughly to determine how good a job it does in providing practical advice (and the report is way too long, by the way); however, I did scan through every reference to bioenergy/BECCS, and I think the report does not say nearly enough about the staggering amounts of additional land needed, the unproven nature of the technology, the thermodynamic realities (so much energy invested to harvest, process, dry, and process biomass), and the enormous cost of building infrastructure, including pipelines for CO2. Here is an example for switchgrass as fuel at IGCC plant, from a US government report on BECCS (at https://www.netl.doe.gov/research/energy-analysis/search-publications/vuedetails?id=754). At p. 158: "The size of a 100 percent switchgrass. The maximum feasible amount of switchgrass (5,000 dry TPD) can produce approximately 326 MW in an IGCC plant (at sea-level altitude)." Page 32: "In order to supply 5,000 dry ton/day of switchgrass, the required acreage for cultivation on CRP lands is approximately 357,500 acres. This assumes a yield of 5.1 dry ton/acre/yr of switchgrass and an 80% land cultivation factor." This amount of land translates to a square 38 km on a side. This is a MASSIVE amount of land to produce a measly amount of power, to say nothing of the really large fuel requirements of harvesting, processing, and transporting the biomass. Why are ween discussing this like it's a real option	Noted. Ch6 details the potential role and scale of BECCS based on the available literature
19588	1	14	1	14	In glossary re "2030 Agenda for Sustainable Development" - add the formal reference: A/RES/70/1 [Rianne ten Veen, Netherlands]	Noted, thanks
25152	1	70	1	70	discussions (like in chapters 2 and 6) about biomass used for bioenergy need to be caveated, as not all biomass yields net C/CO2 benefits outright, and this outcome should not be assumed. The use of many forms of biomass for energy production can help mitigate climate change but not necessarily all of them. [Sara Ohrel, United States of America]	Accepted

Comment No	From Page	From Line	To Page	To Line	Comment	Response
3888	1		135		Dear Authors, thank you very much for writing a very nice report. In my opinion it covers most of the topics however there are few places which needs small modification. I have provided my comments Chapterwise below: [Pushp Raj Tiwari, United Kingdom (of Great Britain and Northern Ireland)]	Thank you for your positive comment
3066	1				Very comprehensive report, overall. There are a few typos, but nothing serious. I would expect the typos to be picked up by copy editors. I have nothing to add and am happy to endorse this version of the report. [David Taylor, Singapore]	thanks!
27256	1				Missing throughout the text is a discussion of RESTORATION. For example, the category re/afforestation does NOT contain "forest restoration." Likewise, there could be consideration of ecosystem restoration and land restoration. Sustainable land management sort of captures these processes, however if some elements of SLM, such as re/afforestation, are mentioned, there should be parallel and equally substantive discussion of ecosystem, land, and forest restoration. [Doreen Stabinsky, United States of America]	Accepted. Restoration considered in various chapters
27340	1				Sustainable land management, and its constituent practices, should be the foundation for considering various agricultural practices included in the assessment. Chapter 3 provides a useful overview of SLM technologies and practices. Various other terms are used to group sets of practices climate-smart agriculture, sustainable intensification, conservation agriculture. The use of multiple different aggregate packages of practices is confusing, confounding, and undermines the analytical potential of the assessment. Understanding potential contributions of the constituent practices is extremely important. It is almost meaningless to talk about the contribution of "climate-smart agriculture" or "sustainable intensification" without knowing which constituent practices are or are not included in the assessment / analysis. [Doreen Stabinsky, United States of America]	Noted, thanks. Terminology explained and associated practices outlined where appropriate
27368	1				Is there a need for a cross-chapter discussion of migration? [Doreen Stabinsky, United States of America]	Noted. Assessment of migtation checked across the report (chapters 3, 4, 5 and 7)
26558	1				The report includes biochar in chapters 1,2,4,5,and 6. Such extensive inclusion as aviable approach to land based mitigation seems highly inappropriate at this stage. Indeed there are many biochar enthusiasts, and a burgeoning body of research, yet indications are that there is tremendous variation in most relevant characteristics, from stability, to impacts on crop yields, to priming effects as well as serious concerns (similar as those for BECCS and bioenergy) regarding the scale of biomass supply that would be required to produce significant quantities of biochar to impact global C balance. There are many conflicting results from different studies on biochar. This lack of consistent results is identified in 1.3.4.4, but thereafter the report represents biochar as a much favored option throwing the previous qualifications aside. For example, fig 2.7.1 includes biochar mitigation potential as a given. Fig 2.7.2 and 2.7.8 include biochar again as perfectly viable and effective mitigation "wedges" and "carbon sink enhancement" with "cobenefits". Studies cited in the report appear skewed towards advocacy as a viable solution rather than a critical evaluation of real potential. [Rachel Smolker, United States of America]	Noted and repetition removed where applicable
19926	4	18	4	19	to increase the organic matter (carbon) content of soils, are not limited by land competition constraints [Sabit Erşahin, Turkey]	Noted

Comment No	From Page	From Line	To Page	To Line	Comment	Response
11174	5	42	5	47	This table does not seem to be of much assistance in the context of this report. Ideally, you should also consider picking key findings that are related to this chapter and build on them in the appropriate sections. [Debra Roberts, South Africa]	Noted, and re-examined
21104	12	26	12	29	it would be interesting to provide at one moment of the report a big complete view of the emissions af Ag and the food system, with the emissions from different inventory categories (at least from energy, agri category, LULUCF but only the agri soils), with a nice comprehensive figure. With the detail of transportation, cooling, processing included and detailed. [Valerie Dermaux, France]	Accepted. Table created with summary of available data
7510	12	37	12	37	l don't think the climate mitigation potential of SLM refers to regional climate. It affects global climate through carbon sequestration and reduced emissions [Joris de Vente, Spain]	Noted
26518	17	34	18	4	This sub-section could usefully reference the cross-chapter box on the WFE nexus in AR5 WG2 (Arent et al.) [John Morton, United Kingdom (of Great Britain and Northern Ireland)]	Unclear what section this comment refers to
7770	22	1	22	25	Section 4.4.3.2: Increased frequencies and severity of forest fires in forests in many parts of the globe are contributing to degradation of the forest environment and are an indirect efect of climate change on the forest ecosystem degradation. This is the most spectacular of the climate-mediated disturbances within forest environments, but ther are others such as extreme wind and ice storms and the expasion of invasive forest pests in once-inhospitably cold environments. [Pierre Bernier, Canada]	Clarified
9566	24		24		Glossary page 24: Is there a reason why the definition for "Food system" only includes "Food waste", but not "food loss" from the definition of "Food waste and loss"? Also, these definitions for "food security" and "food system" differ widely from the definitions given in IPCC AR5. Which one will be the IPCC definition? Do these overrule the old definitions, or will they exist in parallel? I think it would be TREMENDOUSLY important to clarify the status of definitions, if existing IPCC definitions are being revised! [Dirk Nemitz, Germany]	Accepted. With regards to the definitions of 'Food system' and 'food security', the definitions have been slightly revised. These definitions have been updated based on the latest available state of knowledge. the term 'food system', this is based on a 2017 report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security.
6924	24	30			you did not introduce the ful spelling of RUE before. [Talal Darwish, Lebanon]	Editorial
9568	28		28		Definition for Harvested wood products reads: "[Definition to be included for the Second Order Draft]". Same is true for quite a few other important terms, such as "land management" or "land restoration" [Dirk Nemitz, Germany]	Noted, A few terms were added to the glossary (e.g. harvest wood products, land management, land restoration) as a placeholder in the First Order Draft. The authors recognize that these terms are important, and have now added definitions to key terms.
19044	29	12	29	13	interestiing work , in accordance with this paragraph :Nouaceur, Zeineddinne. (2004). Brume sèche, brume de poussière, chasse-sable et tempête de sable: Des types de temps spécifiques des régions sèches. Norois. 10.4000/norois.1188. [Azziz Hirche, Algeria]	Thank you for the reference
19352	30	29	31	15	Not directly related to land degradation and migration. Better to reframe (or delete) by first mentioning that evidence is not conclusive with respect to the effect of desertification on mobility but it could be a trigger in other forms of migration due to climate change impacts on agriculture or droughts. [Binaya Raj Shivakoti, Japan]	Clarified

Comment No	From Page	From Line	To Page	To Line	Comment	Response
3864	32	18	32	28	This paragraph goes into detail about the problems raised in points 1 and 4. However, the conclusions arising from this discussion are then ignored because the opening sentence of the Executive Summary asserts that global drylands are projected to expand. This is actually in direct conflict with climate model outputs (Roderick et al. 2015, Greve et al 2017, Leomordant et al 2018). To retain the opening sentence of the Executive Summary (point 1) you will need to explain why you discard climate model projections. REF: Roderick, M. L., P. Greve, and G. D. Farquhar (2015), On the assessment of aridity with changes in atmospheric CO2, Water Resources Research, 51(7), 5450-5463, doi:10.1002/2015wr017031. Greve, P., M. Roderick, and S. Seneviratne (2017), Simulated changes in aridity from the last glacial maximum to 4xCO2, Environmental Research Letters, 12(11), 114021. Lemordant, L., P. Gentine, A. S. Swann, B. I. Cook, and J. Scheff (2018), Critical impact of vegetation physiology on the continental hydrologic cycle in response to increasing CO2, Proceedings of the National Academy of Sciences. [Michael Roderick, Australia]	
9570	45		45		The definition given for REDD+ is inconnsistent with UNFCCC, which shall be avoided in IPCC publications. This is the first time that IPCC attempts to give a definition for REDD+! I would strongly caution that any such step should be very carefully considered, and shall only be taken when full consistency with the existing regulatory framework for REDD+ under the UNFCCC is maintained. Here, this doesn't seem to be the case. The definition used in UNFCCC documents is: "In decision 1/CP.16, paragraph 70, the Conference of the Parties encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks." This comment may also be very relevant for the SR1.5!!! [Dirk Nemitz, Germany]	Noted, The definition of REDD+ provided in the SRCCL glossary is based on the definition provided in the WG III AR5 report, as well as the Synthesis Report, both published in 2014.
23626					I guess it's too late and I know the rough chapter structure was prescribed anyway, but a glance at chapter 6 (which unfortunately I didn't find the time to review in additon to chapter 2) suggestes that the multiple occurrences of statements about the mitigation potential of land use measures (e.g. afforestation), which are already quite dispersed inside chapter 2 (e.g. several times before subsection 2.7 and then again in it), will or must be repeated again in chapter 6. Is there a still a chance to make the structure more efficient, e.g. avoid a subsection on mitigation 2.7 if mitigation is one of the main subjects of chapter 6, or vice versa? [Alexander Graf, Germany]	Noted and repetitions removed where applicable. Chapter 6 restructured in the process

Comment No	From Page	From Line	To Page	To Line	Comment	Response
4252					Chapter 6 go into far more detail about every combination of response than a policy maker or land manager is going to read, but the executive summary is too vague. The key summary where it specifics come together is Table 6.3 and this should be referred to in the Executive Summary for policy makers to view. [Anita Shepherd, United Kingdom (of Great Britain and Northern Ireland)]	Accepted and executive summaries checked to ensure policy relevance
10696					The entire report is very long, and the scope is probably too large. It looks more like an assessment report than a special report. It is difficult to see it as a comprehensive piece that can support decision making. In addition, there many repetitions of overlaps (e.g. between chapter 5, 6 and 7.3.3) [Anne Mottet, Italy]	Noted. Repetitions checked and removed where applicable. The scope was set by the IPCC plenary and cannot be changed
19356					I find the response or proposed solutions less definitive and more of a test-book style list of available arroaches. Even those are not properly analysed and no guidance provided under what context (time and location), who, how (including what scale) they should be applied to achieve xx% of mitigation and xx% contribution to adapation/reduction in vulnerablity. If it is difficult better to move these response section to appendix or somewhere else. [Binaya Raj Shivakoti, Japan]	Accepted and assessment of solution strengthened throughout the report. See also chapter 6 on integrated response options and their scale, context, and potential
19358					Too many use of old references (before 2010 or even before 2000), better to use the recent one and focus on value addition to the already existing IPCC and non-IPCC assessment. Longer report doesnot mean better quality [Binaya Raj Shivakoti, Japan]	Noted, thanks. Literature has been checked and included if it is relevant and was not assessed in AR5
19360					Sustainable Land Management (SLM) is proposed as a prominent recommendation. But details on SLM and how it should be implemented and its potential on mitigation and adapation are not covered well in the report. [Binaya Raj Shivakoti, Japan]	Accepted and discussions of SLM expanded
19362					Biochar example is repeating in several places and same content. Better to delete/streamline/cross-reference to chapter and reduce the length. [Binaya Raj Shivakoti, Japan]	Accepted and repetitions removed where applicable
19364					The chapters exect Chapter 2 contain several overlapping, less specific and recycled information (from other UN and non-UN assessment report). Better to carefully check the content and try to trim down the length of the assessment report. [Binaya Raj Shivakoti, Japan]	Accepted and repetitions removed where applicable

Comment No	From Page	From Line	To Page	To Line	Comment	Response
11914					In multiple places throughout the text of the report the methodologies are mentioned (for example Table 1.2, Box 2.2, Section 2.4.2.1, etc.). Some of these methodologies rely on reports (e.g., inventory), others rely on models or rederived data (e.g. inversion, remote sensing). But few of the methods are direct, measuring actual effects of emission of gas in real time (e.g. micrometeorological methods, particularly eddy covariance, and soil flux methods). These direct methods have localized results, but at the same time, much more defensible, repeatable and verifiable results than other indirect methods. It would probably make sense to put more emphasis and to increase the mentioning of these direct methods and global and regional science body using these. Global and regional Flux Networks - FluxNet (Global), AsiaFlux, Ameriflux (North America), ICOS (EU), NEON (USA), etc all contributed to the global flux database using the direct methods which is then broadly used to verify the results of the modeling, inventory and remote sensing methodologies. It would make sense to mention all of this information multiple places throughout the text to strengthen the report, and to give readers a good feel about a very directly measured ultimate origin of the conclusions and recommendation of the report. [Burba George, United States of America]	Accepted and clarified where appropriate. See also supplementary material for more detail on methodologies
6004					Under land degradation (chapter 4), desertification (Chapter 3) and the interlinkages between desertification, land degradation, food security and GHG fluxes: synergies, trade-offs and integrated response options (Chapter 6) : I feel it is important to highlight lessons learnt (success or failure) and experiences gained from past activities in some countries, in land use planning, soil and water conservation projects and programs, watershed management projects and programs and recently the sustainable land management program supported by many UN organizations and bilateral arrangements. More importantly, countries have invested substantial amount of resources and have taken policy decisions to implement several of these projects and programs with the primary objectives of mitigating land degradation in agricultural landscapes, afforestation, reforestation and restoration / rehabilitation of degraded lands to fight desertification. Some of these have been highlighted in the two chapters but discussion on some of the successful experiences need to be further indicated. This will help the scaling up and out of SLM and ecosystem restoration efforts that are indicated in the document in several places. The WOCAT-LADA documentation, its databases and publications will be of use. Similarly, there are several research undertakings in countries. Some of the innovations from research and the documented traditional practices need to be briefly discussed to some degree if not exhaustively. Institutional issues from the point of view of creating enabling environments (sharing experience) of successful models could be of use. The documents have sufficiently addressed the problems (severity, extent, magnitude etc), challenges and opportunities in the chapters. If the authors and coordinators of the work are convinced of the usefulness, a separate chapter on good practices of land use and landscape activities could be created or simply sections be included in the chapters to present useful experiences and lessons learnt in th	Accepted, relevant lessons learn included as case studies.
18818					Explanation of assessment being post AR5 is repeated several times throughout the report, can be mentioned once only in Ch. 1 [Debora Ley, Guatemala]	Noted and repetitions removed where applicable

Comment No	From Page	From Line	To Page	To Line	Comment	Response
11208					References in the report need to be checked for errors and addressed accordingly. [Debra Roberts, South Africa]	Accepted.
11742					The use of the calibrated uncertianty language is patchy and inconsistent. [Debra Roberts, South Africa]	Accepted, imporved.
11744					There need to be clearer links back in each chapter to the relevant findings of other Special Reports: 1.5 and SROCC so that there is continuity in the assessment narrative. [Debra Roberts, South Africa]	Accepted, improved.
11746					The bulk of what is presented in the chapters is still more of a review than an assessment [Debra Roberts, South Africa]	Accepted, improved.
11748					Need to move towards greater quantification of impacts and costs of action, inaction, avoided costs etc. as well as the identification of "tipping points" where possible. [Debra Roberts, South Africa]	Accepted, improved.
11750					The Executive Summaries are not sufficiently focused on highlighting the key policy relevant assessment findings [Debra Roberts, South Africa]	Accepted, improved.
11752					There is substantial overlap in the material presented in the various chapters (esp 3 and 4). [Debra Roberts, South Africa]	Accepted, overlaps minimized.
11754					There tends to be a bias to Contributing Authors from the Global North in some chapters [Debra Roberts, South Africa]	Noted, contributing authors are invited for their expertise irrespective of their country of origin.
11756					Attention needs to be paid to the grammatical quality of the text, some chapters are weaker than others in this regard. [Debra Roberts, South Africa]	Accepted, improved.
11758					SROCC authors have taken a decision to refer to indigenous knowledge and local knowledge separately and to move away from terms like traditional ecological knowledge. Ideally there needs to be consistency across the SRs as far as possible. [Debra Roberts, South Africa]	Acceped.
11760					There needs to be a box in the Chapter 1 that talks to the terms "Ecosystem Services" and "Nature's Contribution to People" which explains why NCP is used in this report (SROCC is likely to use ES and will have to do the same). [Debra Roberts, South Africa]	Acceped.
11762					The issue of "risk" is an evolving debate in this assessment cycle and the way risk is addressed in SRCCL should be contextualised within that broader narrative. [Debra Roberts, South Africa]	Accepted. 'Risk' defined in the glossary, and expanded in Ch7
11764					There is a clear focus on "risk" in the report but less of a focus on a clear and structured narrative around "solutions" that the policy makers and practitioners can access and understand. A summary table of these in each of the chapters would be useful. [Debra Roberts, South Africa]	Accepted. Solutions detailed in each chapter

Comment No	From Page	From Line	To Page	To Line	Comment	Response
2814					General comment: Congratulations for the thorough review. Regarding "response options" in general, the same response options were repeated many times in different sections. I believe that the report will look less intricate (too many titles and subtitles), gain in clarity and save editorial space if general concepts on responses like "mitigation", "adaptation", "prevention of desertification", "delivery of food security". "biodiversity of ecosystem services" and "UN SDGs" are treated in full introductory chapter. For example, "biodiversity & ecosystem services" could be developed in its theoretical integrity (considering both, co-benefits and adverse side effects) in that introduction. Thus, response options could address specific intervention actions avoiding concepts reiteration. [Ernesto Viglizzo, Argentina]	Some repetition difficul to avoid, mut more concepts now introduced in chapter 1 and a cross-chapter box on ecosystem services developed.
2816					Cited articles in text should be referenced in the Reference section. By chance, I found that two of my articles cited in text were omitted in References: Viglizzo and Frank (2006) (Viglizzo, E.F. and Frank, F.C. (2006). Land use options for Del Plata Basin in South America: Tradeoffs analysis based on ecosystem service provision. Ecological Economics 57: 140-151) and Viglizzo et al. (2009) (Viglizzo, E.F., Jobbagy, E.G., Carreño, L.V., Frank, F.C., Aragón, R., De Oro, L., Salvador, V.S. (2009). The dynamics of cultivation and floods in arable lands of Central Argentina. Hydrology and Earth System Sciences 13: 1-12). [Ernesto Viglizzo, Argentina]	References will be checked before the final submission of the report
6742					LEFT BLANK marks transition between chatpers [Graciela Metternicht, Australia]	Editorial
6464					Something to look at relationship between landuse and marine environment would be helpful - currently seems to be very terrestrial. [Hannah Fluck, United Kingdom (of Great Britain and Northern Ireland)]	Noted. As there is also a Special Report on Oceans and the Cryosphere in this IPCC cycle, some boundaries have to be drawn
6466					Some mention of cultural heritage and the impact of mitigation, adaptation and climate change upon cultural heritage throughout - in particular agricultural practice, afforestation, drainage and irrigation can have a considerable impact upon tangible cultural heritage especially archaeological remains. references: Vincent Holyoak and Stephen Trow 2014. The Erosion of Archaeology: the Impact of Ploughing in England', in Erwin Meylemans, J Posen and I In't Ven (eds) The Archaeology of Erosion, the Erosion of Archaeology: Proceedings of the Brussels Conference, April 28–30, 2008 (Relicta Monografieën 9). Brussels: Flanders Heritage Agency, 55–62. ; Jon Humble. 2010. "Assessing and managing risk: the Scheduled Monuments At Risk (SMAR) and Conservation of Scheduled Monuments In Cultivation (COSMIC) Projects, England" in Stephen Trow, Vincent Holyoak and Emmet Byrnes (eds) Heritage Management of Farmed and Forested Landscapes in Europe. Brussels: EAC Occasional Paper 4, 135–40. https://www.europae-archaeologiae-consilium.org/content4 ; Oxford Archaeology. 2002. The Management of Archaeological Sites in Arable Landscapes BD1701. Defra. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Compl eted=0&ProjectID=&12 v Also activities such as deforestation can have considerable cultural impact. [Hannah Fluck, United Kingdom (of Great Britain and Northern Ireland)]	Noted and taken into account in Chapter 7

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6468					could it include some assessment of traditional land use/land management practices and traditional building materials? - (e.g. the use of wood is discussed but what about thatch, adobe, lime? brick? and any changes to concrete in areas where these were traditionally used?) Research in Europe on European indicates traditional building material can be more resilience to flooding and reduce overheating as well as low carbon. (e.g. Historic England, 2012. Practical Building Conservation Series. Historic England, Swindon.; Ridout, B and I. McCaig, 2017. A Preliminary Study of Flood Remediation in Hebden Bridge and Appleby. Historic England research report Series 11/2017) [Hannah Fluck, United Kingdom (of Great Britain and Northern Ireland)]	Noted, thanks for the suggested references
25836					Please focus on policy-relevant information in the Executive Summaries and be as specific as possible in the limited space. Outcomes of assessments for example looking at decision making, adaptation and mitigation options, risk management, trade-offs or effects on the Sustainable Development Goals might be considered most important by non-expert readers addressed in the Executive Summaries. [Hans Poertner and WGII TSU, Germany]	Accepted and executive summaries checked to ensure policy relevance
25856					Spell out acronyms when first used in an Executive Summary, chapter, figure, FAQ or box. [Hans Poertner and WGII TSU, Germany]	Noted, use of acronyms reduced
26420					Executive summaries are often short of specific and quantified policy relevant key findings traceable to chapters, e.g. on context, tradeoffs, pathways, impacts, risks, socioeconomics. Bullet points are sometimes lengthy and might be broken up if specific information can be included. For example, a highly relevant statement I found for context in chapter 1 is: By 2030, the demand for food, energy, and water is expected to increase by at least 50%, 45% and 30%, respectively. [Hans Poertner and WGII TSU, Germany]	Accepted and executive summaries checked to ensure policy relevance
26432					SRCCL is heavily human focused and utilitarian. This approach does not sufficiently consider diverse value systems including those that include an appreciation of life and the diversity of life forms per se as well as conservation approaches. Please revisit and complement. [Hans Poertner and WGII TSU, Germany]	Noted and checked against the literature
26458					In lengthy chapters text on key disciplinary aspects relevant for the assessment should be moved to supplementary material. Integration of text across working groups is a key aspect of AR6 special reports. The writing of consecutive and separate blocks of WGI, II and III findings should be avoided. [Hans Poertner and WGII TSU, Germany]	Accepted and repetitions removed where applicable
26460					Text should assess quantifiable impacts, losses and risks and then should address solution options, i.e. to what extent and how risks can be reduced via adaptation and mitigation measures? Limits to adaptation should be analysed when qualifying and quantifying residual risks and associated losses and damages. A key concept is the risk concept of WGII which is currently not used consistently in all chapters. [Hans Poertner and WGII TSU, Germany]	Noted. Concept of risk streamlined across the chapters. Quantification provided where appropriate and possible based on the literature
26464					Land-base adaptation and mitigation options should be placed into the wider context of non- land-based options so as to not appear biased and help policy makers in finding the right choices. [Hans Poertner and WGII TSU, Germany]	Accepted

Comment No	From Page	From Line	To Page	To Line	Comment	Response
13808					When I reviewed the SOD of SR1.5, there were so many editorial mistakes. These mistakes made the meaning of the sentence unclear and I took too much time to understand the content. In the previous sheet in this file, the instruction said that "We would request reviewers to focus on substantive comments relative to the content rather than any minor editorial corrections", however, I think these editorial mistakes shoud be corrected before the review of the SOD as long as possible. [Hiroaki Kondo, Japan]	Noted
3874					Terms such as "inequalities", "differential vulnerability", "land grabbig", "water grabbing", "land use conflicts" are largerly missing in the entire report. Climate and non-climate dirven increasing natural resource scarcity (including land and water availability), rent seeking of the large capital, corruption and lack of appropriate regulations in many countries are pushing vulnerable populations away from fertile/inhabitable land to ecologically marignal areas prone to floods, droughts, without secure water access, without proper infrastructure (i.e. slum areas). This is a tendency common for the global South; through migration, piracy, etc. afecting also the global North. Such trends will intesify in the future posing serious international security threaths, making the SDGs even more impossible to achieve. Due to the increasing social and ecological pressure such areas are prone to conflicts, many people migrate, also to the Western-World. Some references: Chiarelli et al. (2016) Climate change and large-scale land acquisitions in Africa: Quantifying the future impact on acquired water resources, Advances in Water Resources, https://doi.org/10.1016/j.advautres.2016.05.016; Otto et al. (2017), Social vulnerability to climate change: A review of concepts and evidence, Regional Environmental Change, DOI 10.1007/s10113-017-1105-9; Schellnhuber et al. (2016). The Challenge of a 4 °C World by 2100. In Brauch, H.G., Oswald Spring, U., Grin, J., Schffran, J. (Eds.): Handbook on Sustainability Transition and Sustainable Peace. Springer International Publishing Switzerland; Using land for large-scale land climate mitigation projects might sharpen those tendencies, what is actually already happening in some areas, e.g. Hunsberrger et al. (2017) Climate change mitigation, land grabbing and conflict: towards a landscape-based and collaborativbe action research agenda, Canadian Journal of Development Studies, https://doi.org/10.1080/02255189.2016.1250617 [Ilona M. Otto, Germany]	Noted and checked against the literature. References checked

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26998					It looks like authros have consistently used "evidence and agreement" matrix to illustrate their position on a particular issue. I know where it come from but climate skeptics could benefit from an analysis a step further. What is not clear is that on what basis they have classified various findings into a particular category. For example, if there is high disagreement (e.g. safety of nanofoods, GMOs) and limited evidence (not enough research), this situation can be a very controversial one. A new technology may not have enough evidence of its human health and ecological impacts but when we know the impacts, the technology itself may have been highly embedded into the incumbent regime of food and agricultural systems. To shed more light on this issues, authors should look at socio-technical systems literature, both in the context of develoed as well as developing countries. The referances I have provided would be helpful in this regard. Authors could also look at other Chapters of this review where these issues are being discussed, not necessarily in food and agriculture but in energy and transport. [Laxmi Pant, Canada]	Noted. Confidence language used throughout the report follows the IPCC guidelines
19630					The introductory parts of the chapters should be made more consistent. Some chapters contain a recap of conclusions from previous IPCC reports (Ch 2,4, 5,7), but and other chapters do not (ch 3, 6). Apart from looking back to AR5, it would be good to give the reader a taste of new information in this report since AR5. A good example can be found in Ch 5, section 5.1.1 p 7 lines 16-20; this chapter is not only about undernutrition as in AR5 but also on overconsumption. My recommendations : (1) provide all substantive chapters 2-7 with a section with a (brief) recap of the relevant previous AR5 conclusions (1 don't think you need to go further back to AR4, TAR etc as AR5 has digested that info already); (2) add a section in the introductory part with 'new findings since AR5'. The remarks in ch 5 can serve as an example. Aldo In Ch 7, there is a (lengthy) consideration of risk and uncertainty that is not in AR5. Adding a (brief) section with 'what is new since AR5' will directly attract the attention of the media, which will help communicate the findings of this report to a broad audience [Meyer Leo, Netherlands]	
3886					The present reviewer has to admit that he has been reading the SRCCL FOD with a single concern in mind : to argue that the IPCC community has not been, so far, giving adequate attention to the human population issue; and specifically to the enormous potential for mitigation which could be mobilized through a steady decrease of human population. The present FOD is a further illustration of this passive attitude. I am aware that demography is a touchy issue, possibly controversial, and that some political authoritties would prefer that this issue be simply ignored. However the IPCC gather people who are scientists, engineers, experts, not likely to refrain from investigating problems whenever logical reasoning tells them that such problems ought to be investigated. At least this is what I hope. This is by the way that state of mind I find in my colleagues directly involved in the IPCC work. The following comments aim at pointing out (not exhaustively) various parts of the SRCCL where implementing a decrease of the population is an option which ought to be introduced, discussed, evaluated (extents of evidence, agreement) along with other mitigation options. [Philippe Waldteufel, France]	Noted. Drivers and mitigation measures are assessed based on the available literature

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26608					BECCS is incorporated throughout the report as a viable approach to land based mitigation. There are serious concerns about the land use, which are acknowledged, but the technology nonetheless continues to feature as viable option. I will not comment on the land use implications of supplying such quantities of biomass, but rather on other concerns not often taken into consideration. [Rachel Smolker, United States of America]	Noted. Comment taken into account in Ch6 when assessing BECCS
26610					BECCS is incorporated throughout the report as a viable approach to land based mitigation. There are serious concerns about the land use, which are acknowledged, but the technology nonetheless continues to feature as viable option. I will not comment on the land use implications of supplying such quantities of biomass, but rather on other concerns not often taken into consideration. BECCS would depend primarily on capturing carbon from smoke stacks of power stations that burn biomass. To date CCS has been attempted for coal powered plants, with very limited "success". We know of two operating facilities globally, including Boundary Dam in Saskatchewan, and Petra Nova in Texas. Carbon capture requires energy, imposing a major energy "penalty" on the facility. Boundary Dam uses about 30% of the energy generated to power capture itself. Petra Nova constructed a separate gas powered unit to power the capture process. Boundary Dam has met with serious technical problems and only operating intermittently and far below capacity. Meanwhile, there are no operating biomass power stations fitted with carbon capture. (some ethanol refineries capture fermentation CO2 streams). DRAX in the UK was recently selected for a small pilot project for BECCS. But carbon capture from biomass power generation is likely to be even more technically challenging than for coal. And due to the energy required for capture process, even larger biomass supply will be required for operation. [Rachel Smolker, United States of America]	Noted. Comment taken into account in Ch6 when assessing BECCS
26612					Another often neglected concern with BECCS is the viability, safety and reliability of CCS itself. Most facilities operating carbon capture use the carbon for enhanced oil recovery, not long term below ground secure storage. The costs of capture make sale of CO2 necessary for economic viability, and the oil industry is eager to access CO2. Petra Nova, for example, will supply CO2 to West Ranch to increase production from 500 to 15000 barrels of oil per day. This renders the project by far a net greenhouse gas emitter. We know of no independent evaluation of the performance of C storage sites that exist. We did a review of the literature available, as well as critical review of the technology [Rachel Smolker, United States of America]	
26614					Last ditch climate option or wishful thinking? Biofuelwatch report, 2015. http://www.biofuelwatch.org.uk/2015/beccs-report/ [Rachel Smolker, United States of America]	Unclear what the comment refers to.
26616					The technical feasibility of BECCS remains highly speculative. That such an unproven technology has risen to prominence within IPCC reporting and other climate-related processes is seriously problematic. The need to act immediately to achieve dramatic emissions reductions and also remove CO2 already emitted is clear - and it is clear that BECCS is far from capable of delivering these. Continuing to advance BECCS as a feasible and realistic option at this time is irresponsible. [Rachel Smolker, United States of America]	Noted. Comment taken into account in Ch6 when assessing BECCS

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26634					Tree plantations are more vulnerable to pest infestations and fire, as well as impacting hydrological cycles. Protecting freshwater resources is increasingly critical for a variety of reasons, including countering the role of drying heat in spurring wildfires. Many studies address the role of forests in maintaining hydrological cycles, and should be more highlighted in the report. [Rachel Smolker, United States of America]	Addressed in report where appropriate
26636					Perry, TD. and Jones, J.A. 2016. Summer streamflow deficit from regenerating Douglas Fir forest in the Pacific Northwest, USA. Ecohydrology https://doi.org/10.1002/eco.1790 [Rachel Smolker, United States of America]	Noted, thanks for the suggested reference
26638					The report does not adequately identify and address underlying causes of deforestation which include primarily unsustainable scale of demand for wood, and expansion of agricultural frontiers (primarily for livestock). Instead of a focus on addressing these, the report instead appears to advocate practices that will further escalate deforestation by increasing demand, including using wood as a substitute for cement in construction (see for example 1.3.4.3, Wood products). The quantity of wood that would be required to significantly substitute for cement in global construction would be vast, and would most certainly escalate rather than limit global deforestation. In general, wood cannot serve as a substitute for fossil fuels (as is underlying assumption for bioenergy), nor can the use of wood be accounted as an offset for emissions from industries such as cement production if we are to limit deforestation. Protection and restorations and greatly increasing demand for wood! [Rachel Smolker, United States of America]	Noted, and assessment of drivers included
26640					ncluding avoided deforestation as mitigation seems illogical and inappropriate. Emissions that have not yet occurred cannot be mitigated! Including avoided deforestation as mitigation only opens a pandoras box of useless greenhous gas accounting that will not be effective. One can claim any currently growing forest that has not been cut down should be considered "avoided" emissions and be counted as "mitigation" of some emissions elsewhere. This would be a zero sum accounting at best! [Rachel Smolker, United States of America]	This comment prompted us to harmonize the terminology and we now use consistently "reduced deforestation and forest degradation" (see chapter 6, section 6.3.1.15 for a definition) instead of "avoided deforestation" across the entire report. Nevertheless "reduced deforestation and forest degradation" is already considered a mitigation measure (see e.g. REDD+) and should therefore be assessed as such in this report.
17346					The role of genetically modified organisms in the food - climate discussion is entirely missing across the entire report. This is an important debate as the widespread use of GMOs while could lead to food security in the short-term - it is also argued that it could compromise climate adaptation capacity of traditional food production systems and also further excercebate global inequalities on international food trade. For more on this topic, see Noah Zerbe,Feeding the famine? American food aid and the GMO debate in Southern Africa, Food Policy, Volume 29, Issue 6, 2004, Pages 593-608, ISSN 0306-9192, https://doi.org/10.1016/j.foodpol.2004.09.002. (http://www.sciencedirect.com/science/article/pii/S030691920400065X) [Robert Ddamulira, United States of America]	Noted and considered by Chapter 5
25122					discussions (like in chapters 2 and 6) about biomass used for bioenergy need to be caveated, as not all biomass yields net C/CO2 benefits outright, and this outcome should not be assumed. The use of many forms of biomass for energy production can help mitigate climate change but not necessarily all of them. [Sara Ohrel, United States of America]	Noted and role of biomass checked across chapters based on underlying literature

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25124					Bioenergy can come from biogas, corn, corn cobs, almond husks, roundwood, logging residues etc, not all of which fit into the statement above. bioenergy is produced from combusting/converting biomass, which can include ag crops, trees, crop/forestry residues, biogas, MSW, and dedicated energy crops. simple as that. to restrict the definition beyond this reflects a bias. [Sara Ohrel, United States of America]	Noted and definition of bioenergy re-examined in glossary
1438					Overall, the report does well at pulling together the biophysical, social, economic aspects of this confluence of issues. There are areas (chapter 6 and in some parts of other chapters, as noted) where a gender lens or an equity lens is needed to ensure sufficient discussion of the interaction among land, degradation, desertification, climate change, and food security, particularly given the strong role that issues of gender and inequality play in vulnerability to poverty, hunger, and climate change. Further, some areas of chapter 5 begin to slide back to a heavy focus on the biophysical and food production aspects of food security. However, overall, there is good recognition of the various pillars of food security. [Tonya Rawe, United States of America]	The SOD considers these aspects in more detail where appropriate, esp. W.r.t. chapters 1,5,6.
21120					Agro-ecology, even without using this name (cf upper question), is very present in the report, through agroforestry (vey present), agroecologically based strategies (6-36 131), biodiversity based agri (6-27 113), ecosystem based adaptation (agroecology uses them) (6.5.4) very present also, sustainable agriculture. They are always presented as very good for SDG, or biodiversity (6-65 127), or soils (6-65 116), or food security (6-38 13), and then there is a potential side effect when it's misused presented (ex for agroforestry on emissions 6-36 135; on biology 6-36 136). There are also some practices like « manipulation of rumen microflora » (5-33 125), that are presented only in the mitigation sections, so meaning they don't have any other cobenefits, but presented without any warning of all the uncertainties of the cosequences of their uses. So it is confusing between the practices that are good examples for the cobenefits, and those promoted by IPPC in the mitigation sections (like 5-33). Maybe the explanation comes from the fact that in the mitigation sections there are only the practices that are modelled, but it's not written. To give clarity, in this report there should be a section on when taking into account the SDG, including biodiversity, taking mitigation and adatation, taking rural areas, the behavior changes like wastes and losses, diet, what do the IPPC recommend, and what are the consequences. It could be at the end of chapter 5, with the integrated practices (5-78 118), adding SDG and biodiversity to the whole objectives, to give the big picture. Or with the nice figures chapt 6 pages 91 to 93?. [Valerie Dermaux, France]	Noted
21126					there are several para on agroforestry, I didn't see about the productivity allowed by it, especially in terms of how to measure it, and the use of land equivalent ratio concept. If it's not in the report, it would be usefull to describe it a bit, as it's an easy way to show the productivity of multiple productions slots ; [Valerie Dermaux, France]	Accepted

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21344					It's written chapter 2 page 114, line 37 to 39 that "Mitigation options not included in integrated pathway modelling, include "nature based solutions" (Griscom et al. 2017) such as soil carbon management or wetland management which have the potential to alter the contribution of land-based mitigation in terms of timing, potential and sustainability consequences.". It would be clearer for the reader to have a big disclaimer on that, and also on the fact that CCU is not modelled, otherwise, not finding nature based solutions, agro-ecology, CCU, in all the mitigations parts of all the chapters could lead to thinking that those solutions are not efficient. [Valerie Dermaux, France]	literature
25116					The report has many paragraphs on several topics in each report (like on agroforestry, on	Accepted, coherence improved.