

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	56725	SPM	0	0	0	0	In order to avoid misunderstanding, a caveat is necessary that the 2 degree C is by no means a threshold identified by science, but the frequency of literature is high due to political attention to the 2 degree C target in recent years. (Taishi Sugiyama, CRIEPI)	The relationship between temperature and projected impacts has been characterized, based on the assessment of the available knowledge base.
2	56726	SPM	0	0	0	0	It should be acknowledged that literature is limited to compare the impacts by 2 degree C and 3 degree C (in more general, the temperature resolution of impact analyses is not as high as 1 degree C). (Taishi Sugiyama, CRIEPI)	The relationship between temperature and projected impacts has been characterized, based on the assessment of the available knowledge base.
3	56727	SPM	0	0	0	0	While SPM lists “additional” impacts by climate change, it is not enough information for policy makers. The followings are indispensable for policy makers to understand the scale of challenges for adaptation and to consider the priorities to allocate political resources. If the impacts by climate change is not as much as that by natural variation or direct human intervention, human being will be able to adapt to the impacts by climate change without major problems - and vice versa: 1) Comparison of the impacts with the possible range of baseline uncertainty. To name a few examples, (a). The benefits from higher income may or may not dwarf the impacts by climate change (b) Extinction of species by direct human intervention (such as killing Nauman elephants or burning-off the weeds in the field by native Americans for centuries) may or may not dwarf the impacts by climate change. (c ) Virtual sea level rise due to subsidence of ground by agricultural and industrial pumping of underground water may or may not be faster than sea level rise due to climate change. 2) Comparison of the impacts by climate change with (beneficial) impacts by dedicated policy to address the targeted issues such as medical care, sanitary, and so forth to meet MDG or WEHAB improvement. (Taishi Sugiyama, CRIEPI)	The focus of the report is climate change and also its interaction with other stressors, and the relative magnitude of different factors is addressed where relevant to this scope.
4	56728	SPM	0	0	0	0	It should be noted that most adaptations are NOT new or unknown since they have been part of disaster management and development activities. Human beings know how to manage climate change risks through past disaster management and development policies. For example, coping with sea level rise is not new since people have been managing the subsidence of ground due to industrial and agricultural pumping of underground water. We know how to deal with it, but the problems is that it may come at certain costs. (Taishi Sugiyama, CRIEPI)	The WGII assessment presents the range of response options available, including incremental and more fundamental changes. The rate and convergence of impacts, combined with the high concentrations of people and assets in exposed areas, can be historically unprecedented.
5	57376	SPM	0	0	0	0	The SPM draft brings out almost all the key points that I would want to make about impacts and adaptation, from my experience in the Pacific Islands. . Nor did it include any conclusions with which I strongly disagree. (Tony Weir, University of the South Pacific)	Thank you.
6	57423	SPM	0	0	0	0	SPM in general seems to me very clearly constructed and it contains very nice, clear and compact tables and figures (Asko Hannukkala, MTT Agrifood Research Finland)	Thank you.
7	57511	SPM	0	0	0	0	Practically no attention is paid to geoengineering option though such options are discussed in many chapters of WGII SOD. Only 3 lines are devoted to Carbon Dioxide Removal (CDR) geoengineering approach (page 17, lines 39-41). Solar Radiation Management (SRM) approach is not mentioned at all. (Alexey Ryaboshapko, Institute of Global Climate and Ecology)	Coverage that appropriately reflects the assessment of the available knowledge base has been considered. The effect of these strategies on level of climate change is assessed in WGIII, whereas their effects on the physical climate system are assessed in WGI. Only the more narrow assessment of consequences for human and natural systems is included in WGII.
8	57564	SPM	0	0	0	0	In reading AR5/WG2/Ch.19, we understand the importance of both adaptation and development pathways that may affect risks of RFCs. In Box SPM.7 Figure 1, very informative chart of the relationship between acceptable risks, tolerable risks and adaptation limit is shown. By the same token, Figure 19-6 in Chapter 19 of AR5/WG2 that shows the importance of development pathways that affect vulnerability of society should be added to SPM. (Mitsutsune Yamaguchi, The University of Tokyo)	The extent to which risks can be reduced through adaptation and mitigation is now highlighted further in section B. The effect of development pathways on vulnerability is also emphasized in the SPM. Additionally, adaptation limits are highlighted in C-2, although it is impossible to do so to the extent of the underlying chapter given SPM page constraints.
9	57685	SPM	0	0	0	0	Greater indigenous and other participant observations of local scale changes should be brought into the information gathering and assessment process in a robust manner. Adaptation decision-making could be greatly enhanced through coordinated communication (Elizabeth Burleson, Pace University School of Law)	Section A-3 includes findings relevant to this point.
10	58310	SPM	0	0	0	0	Transformation adaptation is new content in IPCC AR5 and hotspots also, however, there is no content about transformation adaptation in SPM. I suggest add to content about transformation adaptation in SPM. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Transformation and transformational adaptation are addressed in section C-2.

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11	58497	SPM	0	0	0	0	Thanks to all authors for the great work preparing the SPM. The whole SPM should be shortened. So many words and many large tables. It is difficult to understand which are the main issues. In listing the main issues, the uncertainties should be ordered from "virtually certain" to "exceptionally unlikely." (Luis J Mata, Independent Consultant )	Length has been reduced and clarity improved. Findings are presented by topic, rather than degree of certainty, to retain a logical flow for the information.
12	59752	SPM	0	0	0	0	Given some policymakers are likely to have limited understanding and knowledge of climate change science and of previous Assessment Reports, the Summary for Policy Makers would benefit from increased attention to definitions of acronyms and terms. Terms such as 'adaptation activity' (most notably at Page 5, Line 16) are vague and difficult to understand affecting flow and continuity of content. Continuity and readability may be enhanced by the inclusion of brief, plain English descriptions of key concepts (either 'in situ' associated with first mention in the text, or as a glossary). It is noted that a very short glossary exists, but this does not cover a multiplicity of concepts such as the Representative Concentration Pathways (RCPs). The SPM would also benefit from references indicating where in the remainder of the AR5 reports the reader might find more information about unfamiliar terms or acronyms. (AUSTRALIA)	Careful attention has been given to the clarity of wording in the SPM, and the WGII AR5 glossary contains definitions of many key concepts. The RCPs are introduced in section A-3, before presentation of future risks and choices, and they are also defined in the report glossary. Line-of-sight references to supporting chapter sections are provided for each element of the SPM.
13	59753	SPM	0	0	0	0	The SPM would benefit from an upfront description of the Representative Concentration Pathways (RCPs) and Shared Socioeconomic Pathways (SSPs). These concepts are crucial to an appreciation of what RCPs and SSPs mean. Of note, policymakers are unlikely to understand the description of RCPs as representing "radiative forcing of 2.6, 4.5, 6.0 and 8.5 W m <sup>-2</sup> ". These concepts are also crucial to the ways in which scenarios might be used (e.g. one way of dealing with uncertainty; offering a tool for thinking about the range of possible futures or for evaluating desirable futures; thinking about trade-offs; developing adaptation policies and their likely benefits), and the implications of uncertainty around future human development pathways for reporting of impacts and vulnerability in the AR5. (AUSTRALIA)	The RCPs are introduced in section A-3, where findings more generally about scenarios can also be found. Additionally, more intuitive short descriptions of scenarios have been prioritized.
14	59754	SPM	0	0	0	0	Notwithstanding the shift to RCPs/SSP, the SRES scenarios of AR4 should also be described in the Summary for Policymakers given these are used frequently throughout the AR5 reports. (AUSTRALIA)	The continued use of the SRES scenarios in the relevant literature and thus in the report is noted in section A-3.
15	59755	SPM	0	0	0	0	The SPM would benefit from a discussion on the need for clarification of modelling scenarios. The chapter would benefit from a brief, plain English description of the climate modelling reported on by WGI, including commentary on advances since AR4 (changes in number and choices of Global Climate Models used, the new RCPs/SSPs; how useful the modelling is at the regional level and implications for downscaling; and so on. That is, reference to 'ensembles of GCMs' is vague and not meaningful). (AUSTRALIA)	Section A-3 presents an entry point to the assessment of WGI, setting the context for the assessment of risks in WGII. The reviewer is referred to WGI for the specific findings. A-3 is intended as a self-standing brief overview of observed temperature and precipitation patterns to date, projected future changes, and use of scenarios, framed as is relevant to the WGII report.
16	59756	SPM	0	0	0	0	This chapter is particularly useful in regard to considering the multidimensional vulnerability to climate change. It highlights the constraints for communities (e.g. remoteness and access to resources) and how these constraints are most at risk of the adverse impacts of climate change. We accept the point that climate change requires a multidimensional approach where adaptive capacity benefits from context-specific interactions. (AUSTRALIA)	Thank you
17	60654	SPM	0	0	0	0	The SPM is very long and complex -- more so than any other IPCC SPM. Figures and tables are also larger and appear to be used in place of text. Suggest exploring ways to shorten and simplify the SPM. (Haroon Kheshgi, ExxonMobil Corporate Strategic Research)	Length has been reduced and clarity improved.
18	61707	SPM	0	0	0	0	The SPM includes a lot of text on adaptation but relatively little on the impacts and the benefits of mitigation. The SPM also does not highlight the impacts that can be avoided by mitigation. This information is vital for informing the international discussions and needs to be far more prominent. Many of these were presented in a special journal issues found here: <a href="http://rsta.royalsocietypublishing.org/site/2011/four_degrees.xhtml">http://rsta.royalsocietypublishing.org/site/2011/four_degrees.xhtml</a> . It would also be far more logical to restructure the SPM so that the risks (i.e. observed impacts and future impacts) are stated up front before discussion of responses (adaptation and mitigation). Therefore we suggest that Section C is placed before Section B. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Information on the benefits and impacts of mitigation is now included to the extent possible based on the assessment of the available knowledge base. Much of the material in the previous section B has been moved to section C-1, in line with the suggested reorganization. In terms of how risks vary by level of climate change, this is considered explicitly within the reasons for concern framework and the regional key risk table.
19	61708	SPM	0	0	0	0	The SPM needs to include more information on the impacts at different levels of climate change. WGI uses the RCPs extensively and the impacts presented here need to refer to these scenarios to provide consistency and comparability across all three WG reports. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Assessment of the relationship between temperature and projected impacts has been included, based on the available knowledge base. The RCPs are introduced in section A-3, while also noting that the literature on projected impacts is still largely based on the SRES scenarios.

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20	61709	SPM	0	0	0	0	The definitions for critical terms are difference from the former IPCC definitions. This requires some clarification/justification. Some of the new definitions seem to be incomplete or too generally (e.g. vulnerability, impacts). The concept of vulnerability, delinked from climate change, often creates confusion within the report between primary vulnerability factors (exposure, impacts etc.) with secondary elements, which are important but not directly linked to climate change. By highlighting mostly the latter, the report and the SPM become a bit unfocussed. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Box SPM.1 now includes a footnote highlighting that some definitions differ from previous IPCC reports. Vulnerability, exposure, and impacts are defined in this box, and their role as core concepts is highlighted in the introduction to the SPM and in section A-1.
21	61710	SPM	0	0	0	0	The report provides a lot and rather "highly aggregated" information that a policy maker may be difficult to capture. A synthesis focusing on key findings/messages may be of value. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The clarity and focus of the SPM on policy-relevant findings have been improved.
22	61711	SPM	0	0	0	0	Currently, the SPM does not present any clear messages for policy makers and the information on impacts is quite vague. There is no clear narrative or quantification of the impacts that will allow the reader to gauge the extent of the problem and the scale and type of actions that are needed to address it. A glossary would also be useful for defining new terms that were not included in previous reports (e.g. climate-resilient pathways). Specific comments are provided in other comments. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The clarity and focus of the SPM on policy-relevant findings have been improved. The WGII AR5 glossary contains definitions of many key concepts, including climate-resilient pathways.
23	61712	SPM	0	0	0	0	Need to be more intuitive. It provides certain tables with a lot of text. For sake of readability we suggest a better solution needs to be found here. Policy makers do not really like to read lengthy tables and text. Even the coloring of tables -in many cases- do not really help. The SPM needs a more innovative design that really sums up essential outcomes of the chapters. However, it might be possible that this is not really feasible yet, because certain chapters remain also vague in regard to their synthesis and this obviously influences also the design of the SPM. For example: Figure SPM 7.1 , what should be the meaning/added value of this figure? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The clarity and focus of the SPM on policy-relevant findings have been improved.
24	61713	SPM	0	0	0	0	The longer tables and some Figures (e.g. Tables 1,3; Figures 5,6) are too long and complex for an SPM to be easily accepted in Plenary, but also to difficult to understand to purvey a clear message to policy makers. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The clarity and compactness of figures and tables have been improved, recognizing their role in some cases in providing details of the diversity of examples that underly overall summary statements. The number of figures and tables has also been reduced.
25	61714	SPM	0	0	0	0	The overall tone of the report is negative, emphasising not only the risks, but also portraying adaptation as more difficult than it actually may be by stressing barriers, costs, trade-offs rather than opportunities, (co-)benefits and synergies. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	To the extent supported by the underlying assessment and literature, both risks and potential benefits from climate change are presented, as well as adaptation opportunities, co-benefits, and synergies.
26	61715	SPM	0	0	0	0	Many of the findings are based on scenario modelling studies which leave a lot of assumptions implicit - it is recommended to add a box or paragraph on transparency of methods as in the WG3 AR5 TS. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	These topics are discussed in section A-3.
27	61716	SPM	0	0	0	0	Uncertainties are addressed inconsistently - the usage of all three methods, sometimes within one paragraph - is confusing and many of the findings don't yet have such statements. It is proposed to use confidence levels as a kind of preferred WG2 terminology, with the 2D terminology where it really provides extra information and confidence levels cannot be agreed and likelihoods only for those statements which are derived from WG1. Likelihoods may only be justified when a lot of quantitative data are available, which is usually not the case. This is especially true for Table 4, where all the likelihood statement should be replaced, if this table is to survive. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The usage of calibrated uncertainty language has been better harmonized, including use of likelihood terms where appropriate.
28	61717	SPM	0	0	0	0	The terms of confidence used in the executive summaries should be applied uniformly. Currently this varies across chapters and in some cases also within chapters. In most cases both degree of confidence and degree of agreement are indicated - this should then be applied consistently. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The usage of calibrated uncertainty language has been better harmonized.

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29	61718	SPM	0	0	0	0	The AR5 WG II report gives much greater attention to marine impacts and adaptation than in previous IPCC assessments, with much greater detail on ocean acidification and de-oxygenation (topic areas that are very closely linked to climate change, and justifiably within IPCC's remit - yet somewhat distinct). These developments are, in principle, very welcome. It is however unfortunate that the coverage of marine issues in Part A (Global and sectoral aspects, in Chapters 5 and 6) does not seem well coordinated with coverage in Part B (regional aspects, in Chapters 28, 29 and 30). Overall, the impression is given of substantive overlap between different chapters, even though each chapter does have a different approach and 'main theme'. This problem arises because: 1) The separation of the remits of Chapters 5 and 6 is not well-defined. Thus the latter, Ocean Systems, necessarily includes the marine part of the former, Coastal Systems and Low-lying Areas. 2) The concept of Part B, Regional Aspects, provides a valid means of achieving geographic focus for land (by considering each continent in turn), but is less applicable for the ocean - particularly with the current chapter structuring. Thus Chapter 30 (The Ocean) is everything, with its main internal structuring primarily based on a system-based distinctions between different parts of the global ocean, rather than geographical/geopolitical boundaries. This problem is compounded by "Small Islands" and "Polar regions" having regional chapters of their own, rather than being considered as parts of the coastal system and global ocean respectively. Whilst the introduction of cross-chapter boxes is presumably intended to provide linkage, the impression of overlap is unfortunately re-inforced. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	There has been extensive coordination across chapters to address these issues. Overlap is an inevitable and desirable part of the assessment, highlighting the inter-relations among systems.
30	61719	SPM	0	0	0	0	A more homogeneous approach to sections would greatly improve the document. At the moment there is no consistency, e.g. some sectors only describe impacts, others impacts and adaptation options/benefits. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This has been done to the extent possible based on the underlying assessment. The nature of available evidence differs across sectors and regions, with implications for the summary of the assessment. Chapeau text has been added in a number of places to further clarify the rationale for material included in each section.
31	61720	SPM	0	0	0	0	Information on costs of impacts is scarce and scattered throughout the report. It needs to be highlighted and would benefit from a dedicated section. Even if they are very uncertain, the costs should be provided and associated with the level of climate change, and characterised in terms of categories. For example, most of the costs of climate impacts results from extreme events, which are highly uncertain and unevenly distributed around the world. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Information on costs has been included in the SPM to the extent possible based on the underlying assessment of the available literature.
32	61721	SPM	0	0	0	0	There is some confusion between some sectoral chapters (e.g. coastal and marine; agriculture and rural areas). Can these linked systems be tackled more consistently? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	There has been extensive coordination across chapters to address these overlaps.
33	61938	SPM	0	0	0	0	Generalk comment. When referring to vulnerability and adaptation, together with the other definitions in this section, perhaps it would be useful also to introduce in Box SPM 1 the accompanying concept of sensitivity, given the relation of this also to resilience and adaptive capacity discussed later in the report chapters? This applies to the same list given in the TS. Also, development could perhaps also be defined early on is it contentious, and in its current form a key driver. Defining climate resilient development likewise might be a way of answering queries that may arise to those unfamiliar with the concepts readily referred to in the rest of this section. Interpretations of this may be widely divergent. Realise that this is covered in later sections but intro helpful upfront. (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	Careful consideration has been given to the clarity of wording in the SPM and the introduction of key terms. In addition, the WGII AR5 glossary contains definitions of many key concepts, including climate-resilient pathways. Please note that the concept of sensitivity is now mentioned within the definition of vulnerability.
34	62400	SPM	0	0	0	0	The SPM has lot of general textbook (101 course) type of information. Many of the paragraphs simply present general information on theory and concepts of - adaptation, vulnerability, management of risk, principles. (INDIA)	The clarity and focus of the SPM on policy-relevant findings have been improved.
35	62401	SPM	0	0	0	0	Surprisingly there is very little coverage of the temperature threshold agreed by the policy makers at 1.5 - 2.0 C. There is a box on implication of 4.0 C but little on 1.5 - 2.0 C. Policy makers are most interested in that. Suggest adding a box on the implications of 1.5 - 2.0 C. (INDIA)	The relationship between temperature and projected impacts has been characterized, based on the assessment of the available knowledge base. Please see especially the presentation of risks across levels of climate change within the reasons for concern and the regional key risk table. Less literature, evidence, and modeling results are available for high magnitudes of climate change.

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36	62402	SPM	0	0	0	0	There are too many large boxes and this makes the SPM a bit unfriendly to read. (INDIA)	The clarity and selection of boxes has been carefully considered, and the number of boxes has been reduced.
37	62403	SPM	0	0	0	0	In the AR4 report summary mountain ecosystems were specifically mentioned in SPM section 3.3.3. In the AR5 report summary we could not find the mountain ecosystems and particularly the Himalayan ecosystems discussed / or presented adequately. (INDIA)	This topic is now included to the extent possible based on the assessment of the available knowledge base, especially building from Chapters 4 and 18 as well as the regional chapters, in terms of observed impacts and future risks.
38	62404	SPM	0	0	0	0	Himalayan glaciers studies are also not reflected in the report summary. There are authentic reports are available from studies. Now the status of glaciers and possible impact may be better predicted. Reference could be taken from: T.Bolch, A.Kulkarni, A.Kääb, C.Huggel, F.Paul, J.G.Cogley, H.Frey, J.S.Kargel, K.Fujita, M.Scheel, S.Bajracharya, M.Stoffel, The State and Fate of Himalayan Glaciers. Science 20 April 2012: Vol. 336 no. 6079 pp. 310-314, DOI: 10.1126/science.1215828 (INDIA)	This topic is now included to the extent possible based on the assessment of the available knowledge base, including Figure SPM.2 that includes a panel on observed changes in Himalayan glaciers.
39	62405	SPM	0	0	0	0	The title of the table states Tradeoffs from adaptation actions. However the fourth column is titled as "Real or perceived externality", it should have been "tradeoffs". The content for many of the adaptation actions are not really tradeoffs but rather barriers and challenges in implementation. Many of the tradeoffs are imaginary and exceptional. Some are incorrect i.e. The tradeoff with respect to crop insurance, i.e. moral hazard and leading to inequity; Its difficult to understand this. Imagine if there is no crop insurance, poor farmers subjected to drought will lose subsistence, food security and livelihoods. We feel that the tradeoffs column should be modified and imaginary tradeoffs should be deleted. (INDIA)	This table has been removed, and tradeoffs are instead robustly addressed at the level of findings within the body of the SPM text in section C.
40	62406	SPM	0	0	0	0	The authors have attempted to synthesize the findings that have been added by the post-AR4 period and also tried to delineate the additional contextual information vis a vis AR 4 report. Though the efforts put on by the authors is demonstrative in the chapters, there is a lot of scope for balanced treatment of the subject that has equal implications and stakes in major biomes of the globe. One finds several examples of different aspects of observed and projected impacts, adaptation and vulnerability analysis derived from regions representing some biomes and surprisingly very less or negligible information for and from some of the major biomes, such as tropical region. Asia, the habitat for majority of human population, is probably the most important regions in the world with significant implications and vulnerabilities in the changing climates; more so is the sub-tropical and tropical Asia, which have majority of population dependent on agricultural activities. Though there have been several observations indicating the impacts, adaptation and vulnerability of the agriculture in this region, surprisingly the authors did not provide or considered the results emerging from the studies conducted in this region. A report of global nature should strive to provide the information from studies conducted in all regions of the world, where ever such information is available. It is that the authors did not include the literature coming on various aspects of agriculture from these regions. As of now, one gets impression by reading these chapters that there is no work about climate change in south Asia (which is not true) and there is no effort from governments for addressing climate change (which again, is not true). Accordingly above comments provide the authors some information/ inputs it is hoped improve the treatment of the subject in global perspective. (INDIA)	Further information on impacts, adaptation, and vulnerability in Asia has been added, to the extent possible based on the underlying assessment of the available knowledge base, especially in terms of observed impacts, adaptation experience, and future risks.

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41	62482	SPM	0	0	0	0	<p>Asia: Adaptation to climate change may be multi-dimensional and identification of vulnerable regions and pro-active adaptation measures (such as start developing tolerant varieties, suitable crop management), emphasis for robust weather forecast systems; timely information and input delivery systems, and post-harvest management (shelters at village level, quality storage facilities), soil health, development of rural infrastructure should be given priority. In livestock the shelter management becomes important. Should promote the natural resource management strategies among the farmers and adopters should be encouraged by providing incentives. Emphasis should be on strategic and long-term development of rural infrastructure for a self-sustaining system. Some references from Indian studies focusing the impacts of climate change and adaptation to climate change</p> <ol style="list-style-type: none"> <li>1. Naresh Kumar, S., P. K. Aggarwal, Rani Saxena, Swaroopa Rani, Surabhi Jain and Nitin Chauhan. 2013. An assessment of regional vulnerability of rice to climate change in India. <i>Clim. Change</i>. DOI 10.1007/s10584-013-0698-3.</li> <li>2. Naresh Kumar, S. and P.K. Aggarwal. 2013. Climate change and coconut plantations in India: Impacts and potential adaptation gains. <i>Agril. Syst.</i> <a href="http://dx.doi.org/10.1016/j.agsy.2013.01.001">http://dx.doi.org/10.1016/j.agsy.2013.01.001</a>.</li> <li>3. Chakrabarti, B., S. D. Singh, S. Naresh Kumar, P. K. Aggarwal, H. Pathak and S. Nagarajan (2012). Low-cost facility for assessing impact of carbon dioxide on crops. <i>Current Sci.</i> 102, (7): 1035-1040.</li> <li>4. Naresh Kumar, S., P. K. Aggarwal, Swaroopa Rani, Surabhi Jain, Rani Saxena and Nitin Chauhan. 2011. Impact of climate change on crop productivity in Western Ghats, coastal and northeastern regions of India. <i>Current Sci.</i> 101 (3):33-42.</li> <li>5. Naresh Kumar, S. 2011. Climate change and Indian agriculture: Current understanding on impacts, adaptation, vulnerability and mitigation. <i>J. Plant Biol.</i> 37 (2):1-16.</li> <li>6. Aditi Srivastava, S. Naresh Kumar and Pramod Kumar Aggarwal (2010). Assessment on vulnerability of sorghum to climate change in India. <i>Agric. Ecosyst. Environ.</i> <a href="https://doi.org/10.1016/j.agee.2010.04.012">Doi:10.1016/j.agee.2010.04.012</a>; . 138:160-169.</li> <li>7. Kattarkandi Byjesh, S. Naresh Kumar and Pramod Kumar Aggarwal (2010). Simulating impacts, potential adaptation and vulnerability of maize to climate change in India. <i>Mitigation and Adaptation Strategies for Global Change.</i> 15:413-431.</li> <li>8. Ashok K.R. and C. Sasikala, 2012. Farmers' Vulnerability to Rainfall Variability and Technology Adoption in Rain-fed Tank Irrigated Agriculture. <i>Agricultural Economics Research Review.</i> 25(No.2) 267-278.</li> <li>9. Vass, K. K., Das, M. K., Srivastava, P. K. and Dey, S.(2009)'Assessing the impact of climate change on inland fisheries in River Ganga and its plains in India', <i>Aquatic Ecosystem Health &amp; Management</i>,12:2,138 — 151</li> <li>10. Vanaja, M., S.K. Yadav, G. Archana, N. Jyothi Lakshmi, P.R. Ram Reddy, P. Vagheera, S.K. Abdul Razak, M. Maheswari, B. Venkateswarlu, 2011 Response of C4 (maize) and C3 (sunflower) crop plants to drought stress and enhanced carbon dioxide concentration. <i>PLANT SOIL ENVIRON.</i>, 5: (5): 207–215</li> <li>11. Hebbar K. B. , M. V. Venugopalan, A. H. Prakash, P. K. Aggarwal, 2013. Simulating the impacts of climate change on cotton production in India. <i>Climatic Change</i>, DOI 10.1007/s10584-012-0673-4</li> <li>12. Srinivasa Rao M., K. Srinivas, M. Vanaja, G. G. S. N. Rao, B. Venkateswarlu and Y. S. Ramakrishna, 2009. Host plant (<i>Ricinus communis</i> Linn.) mediated effects of elevated CO2 on growth performance of two insect folivores. <i>CURRENT SCIENCE</i>, VOL. 97, NO. 7, 1047-1054.</li> <li>13. Manas K. Das, Malay Naskar, Mohammad L. Mondal, Pankaj K. Srivastava, Sumanta Dey, and Anirban Rej 2012. Influence of ecological factors on the patterns of fish species richness in tropical indian rivers. <i>Acta Ichthyologica Et Piscatoria</i> (2012) 42 (1): 47–58</li> <li>14. N Jyothi Lakshmi1, M Vanaja2, S K Yadav3, M Maheswari4, P Vagheera5, P Raghuram Reddy6 And B Venkateswarlu, 2013. Genotypic variation in growth and yield of blackgram (<i>Vigna mungo</i>) genotypes in response to increased carbon dioxide concentration. <i>Indian Journal of Agricultural Sciences</i> 83 (2): 184–8, February 2013 64-68</li> <li>15. M. Vanaja, M. Jyothi, P. Ratnakumar, P. Vagheera, P. Raghuram Reddy, N. Jyothi Lakshmi, S.K. Yadav, M. Maheshwari, B. Venkateswarlu, 2008. Growth and yield responses of castor bean (<i>Ricinus communis</i> L.) to two enhanced CO2 levels. <i>PLANT SOIL ENVIRON.</i>, 54, 2008 (1): 38–46</li> <li>16. M. Vanaja, P.R. Ram Reddy, N.J. Lakshmi, S.K. Abdul Razak, P. Vagheera, G. Archana, S.K. Yadav, M. Maheswari, B. Venkateswarlu Response of seed yield and its components of red gram (<i>Cajanus cajan</i> L. Millsp.) to elevated CO2 <i>PLANT SOIL ENVIRON.</i>, 56, 2010 (10): 458–462</li> <li>17. U. Rajkumar*, M. R. Reddy, S. V. Rama Rao, K. Radhika and M. Shanmugam 2011, Evaluation of Growth, Carcass, Immune Response and Stress Parameters in Naked Neck Chicken and Their Normal Siblings under Tropical Winter and Summer Temperatures <i>Asian-Aust. J. Anim. Sci.</i> Vol. 24, No. 4 : 509 – 516.</li> <li>18. Rao M S, Manimanjari D, Vanaja M, Rama Rao CA, Srinivas K, Rao VUM, Venkateswarlu B. 2012. Impact of elevated CO2 on tobacco caterpillar, <i>Spodoptera litura</i> on peanut, <i>Arachis hypogea</i>. <i>Journal of Insect Science</i> 12:103. Available online: <a href="http://www.insectscience.org/12.103">http://www.insectscience.org/12.103</a></li> <li>19. Bhatia, V.S., Piara Singh, Rao, A.V.R.K., Srinivas, K.S and Wani, S.P. 2009. Analysis of water non-limiting and water limiting yields and yield gaps of groundnut in India using CROPGRO-Peanut model. <i>Journal of Agronomy and Crop Science</i>, 195:455-463.</li> <li>20. Bhatia, V.S., Piara Singh, Wani, S.P., Chauhan, G.S., Rao, A.V.R.K., Mishra, A.K. and Srinivas, K.S. 2008. Analysis of</li> </ol>	Thank you for this input. The summary products cannot directly cite literature, and must summarize findings arising from the assessment provided in the underlying chapters.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
41.2	62482	SPM	0	0	0	0	<p>potential yields and yield gaps of rainfed soybean in India using CROPGRO-Soybean model. Agriculture and Forest Meteorology. 148 (8-9):1252-1265. 21. Chakrabarti B, Singh S D, Nagarajan S, Aggarwal P K. 2011. Impact of temperature on phenology and pollen sterility of wheat varieties. Aust J. Crop Sci. 5(8):1039-1043 22. Chakrabarti B, Aggarwal P K, Singh S D, Nagarajan S and Pathak H. 2010. Impact of high temperature on pollen germination and spikelet sterility in rice: comparison between basmati and non-basmati varieties. Crop &amp; Pasture Sc. 61:363-368 23. Nagarajan S, Jagadish S V K, Hariprasad A S, Tomar A K, Anand A, Pal M and Aggarwal P K. 2010. Effect of night temperature and radiation on growth, yield and grain quality of aromatic and non aromatic rice. Agriculture Ecosystem and Environ. 138: 274-281. 24. Choudhury, B.U., Mohapatra, K.P., Das, Anup, Pratibha, T. Das., L. Nongkhlaw, R. Abdul Fiyaz., S.V. Ngachan, S. Hazarika, D.J. Rajkhowa and G.C. Munda. 2013. Spatial Variability in distribution of organic carbon stocks in the soils of North East India. Current Science, 104 (5). 25. Vivekanandan, E., Hussain Ali, B. Jasper and M. Rajagopalan. 2008. Thermal thresholds for coral bleaching in the Indian seas. J. mar. biol. Ass. India, 50: 209-214. 26. Prasanna Kumar, S., R.P. Roshin, J. Narvekar, P.K. Dinesh Kumar and E. Vivekanandan. 2009. Response of the Arabian Sea to global warming and associated regional climate shift. Marine Environmental Research, 68: 217-222. 27. Kaladharan, P., S. Veena and E. Vivekanandan. 2009. Carbon sequestration by a few marine algae: observation and projection. J. Mar. Biol. Ass. India, 51: 107-110. 28. Vivekanandan, E., Hussain Ali, B. Jasper and M. Rajagopalan. 2009. Vulnerability of corals to warming of the Indian seas: a projection for the 21st century. Current Science, 97: 1654-1658. 29. Prasannakumar, S., R.P. Roshin, J. Narvekar, P.K. Dinesh Kumar and E. Vivekanandan. 2010. What drives the increased phytoplankton biomass in the Arabian Sea? Curr. Sci., 99: 101-106. 30. Vass K K, Das M K, Srivastava P K and Dey S. 2009. Assessing the impact of climate change on inland fisheries in River Ganga and its plains in India. Aquatic Ecosystem Health &amp; Management 12 (2):138-151. 31. Tripathi, K.P. and Sharda, V.N. (2011). Mitigation of Impact of Climate Change through Watershed Management. J.Agril Engg. 48 (1):38-44 32. Rishiraj Dutta, Eric M. A. Smaling, Rajiv Mohan Bhagat, Valentyne A. Tolpekin and Alfred Stein. 2012 Analysis of factors that determine tea productivity in Northeastern India: A combined statistical and modelling approach. Experimental Agriculture 48 (01), 64-84 33. Boomiraj, K. B. Chakrabarti, P.K. Aggarwal, R. Choudhary, S. Chander. 2010. Assessing the vulnerability of Indian mustard to climate change. Agriculture, Ecosystems and Environment 138: 265-273. 34. Upadhyay R.C; Singh, S.V. and Ashutosh (2008) Impact of Climate Change on livestock. Indian Dairymen 60 (3) : 98-102. 35. Upadhyay R.C; Singh, S.V; Kumar, A; Gupta, S.K. and Ashutosh (2007) Impact of climate change on milk production of Murrah buffaloes. Italian Journal of Animal Science 6 (Suppl. 2): 1329-1322. 36. Singh, S.V., Upadhyay, R.C. (2008) Effect of thermal stress on Physiological parameters and milk production in buffaloes. Indian Journal of Dairy Science 61 (1): 62-65. 37. Singh, S.V; Upadhyay R.C. and Ashutosh (2008) Impact of temperature rise on bovine production performance under limited feed resources. Journal of Farming System Research and development 14 (1): 140-143. 38. Shibu C. Thankachan, S.V. Singh and R.C. Upadhyay (2008) Impact of temperature rise on pulmonary dynamics, heat dissipation and antioxidant status in Karan Fries heifers Indian Journal of Animal Nutrition 25 (1): 68-72. 39. S.V. Singh and R.C. Upadhyay (2009) Impact of temperature rise on physiological function, thermal balance and milk production of lactating Karan fries and Sahiwal cows. Indian Veterinary Journal 86 (2): 141-144. 40. Himadri Patir and R.C. Upadhyay. 2010. Purification, characterization and expression kinetics of heat shock protein 70 from Bubalus bubalis. Research in Veterinary Science 88 (2010) 258-262 41. R.C.Upadhyay, Rita Rani, Syma Asharaf, Ashutosh, S.V.singh, SPS Somvanshi and Anil Kumar. 2010. The effect of climatic changes on buffalo milk production. Rev.Vet. 21, Suppl, 256-258 42. R.C. Upadhyay, Rita Rani, Syma Asharaf, Ashutosh, S.V. Singh, S.P. S. Somvanshi and Anil Kumar (2010) Effect of climate changes on buffalo milk production. Rev. Vet. 21: 256-258 43. Shashikant D. Dandage; S.V. Singh, R.C. Upadhyay; M.Vaidya and S.S. Kundu (2010) Thermoregulatory responses of Karan Fries cattle during thermal stress. Indian Journal Animal Nutrition 27: 282-289. 44. Shibu C. Thankachan, S.V. Singh and R.C. Upadhyay (2010) Heat Dissipation, Oxygen Consumption and Antioxidant Enzymes Status During Heat Exposures in Buffaloes Indian Journal Dairy Science 63(6)478-484 45. Sohan Vir Singh, R.C. Upadhyay and Ashutosh (2011) Impacts of climate change on Animal Performance and Mitigation Strategies. Indian Dairymen 60(3): 50-56. 46. R.C. Upadhyay, Ashutosh, R. Rani, S.V. Singh, T. K. Mohanty and M. Gohain (2012) Impact of climate change on reproductive functions of Murrah buffaloes. Journal Animal and Plant Sciences 22: 234-236. 47. Chandra Bhan, S. V. Singh, O. K. Hooda, R. C. Upadhyay, Beenam and M. Vaidya (2012) Influence of temperature variability on physiological, hematological and biochemical profile of growing and adult Sahiwal cattle. Journal Environment Research &amp; Development 7 (2A): 986-994. 48. Sohan Vir Singh, R.C. Upadhyay and Ashutosh (2011) Climate change: Impacts on Animal Performance and Mitigation Strategies. Indian Dairymen 63(4): 50-56.</p>	

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
42	62654	SPM	0	0	0	0	Comment: Is SPM really a summary of the WGII contribution to AR5? SPM is an excellent compilation of the findings of WGII contribution. It communicates to decision-makers the thematic ideas developed by the WGII contribution and the conclusions reached in a highly effective way. It contains page and section references that link it to the chapters of the WGII contribution. However, for a summary to be a summary, there must be an identifiable correspondence between it and content it summarized. This can only occur if the structure of the SPM bears a one-to-one correspondence with the main text. This is only partly true in the present case. The time-constrained decision-maker, who might want to refer to the main text from time to time, should be assisted in finding the correspondence more easily. Also there are several acronyms and specialist terms that have been introduced in SPM without definition. For instance SRES does not seem to have been defined anywhere in SPM. These need to be either defined (in the text) or explained more fully via, e.g., footnotes. These two short-comings may be addressed via the following provisions: 1. Include an explanatory section at the beginning of SPM that explains how it is related to the main text. This could be something like a preface etc. 2. Include a glossary of terms, as well as a list of acronyms at the beginning of the document. (Anirudh Singh, University of the South Pacific)	The SPM presents key findings of the WGII contribution to the AR5, integrating information from the chapters of the underlying report. Line-of-sight references link each key finding to the supporting chapter sections. Acronyms that appear in the SPM are now defined when first used, and key terms beyond those introduced in Box SPM.1 are defined in the WGII AR5 glossary.
43	62667	SPM	0	0	0	0	The SPM has done an impressive job and captured major conclusions from the SOD. It is very impressive that risks seems to be very emphasised and seems to show that WG2 report mainly concerns about risks? Secondly, Some contents, table or conclusions directly copied from the SOD, however, some of them seem remain some problems. Next, its readability needs to improve, if SPM faces many policy makers and non-professional readers, especially for technical words or some box annotation, e.g., Box SPM.3. , Box SUM.4 Figure1. Next, the contents of observed impacts (not only risks, but also some other positive or negative impacts) of CC and their related adaptation experiences might need to add or emphasized if SPM could adjust its contexts. This is because the subject of WG2, that are Impact, adaptation and vulnerability (but not mainly on risks), should be fully reflected. Perhaps, there are some issues or concepts that need to explore. Some suggestions and comments are given as following. (RONGSHUO CAI, Third Institute of Oceanography)	The clarity of the SPM text, tables, and figures has been improved. Observed impacts and adaptation experience are presented in section A, based on assessment of the available knowledge base. Risk represents the potential for impacts and is a function of vulnerability (including lack of adaptive capacity), exposure, and hazard. Thus, risk is an effective mechanism for looking at IAV comprehensively.
44	62700	SPM	0	0	0	0	There are many figures which include expert judgment, e.g., burning ambers in Table SPM.4, Figure SPM.5, and Box SPM.6 Figure1. In principle, the IPCC report should refer to peer-reviewed papers and avoid the citation of the results of expert judgment by LAs. If the expert judgment cannot be avoided for any good reason, the judgment processes should be clearly described. Some descriptions for the judgment processes can be seen for the Box SPM.6 Figure 1 in Chapter 19, but there are few descriptions for the other figures. Such figures should be deleted if possible. If you will not, the judgment processes should be clearly described. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	Assessment of available evidence and agreement underlying such figures and tables are explained more clearly in the SPM, with line-of-sight references to further description in the chapters of the report.
45	63202	SPM	0	0	0	0	In general, this chapter is too general and sweeping in its statements to be of use to policy makers. It seems more aimed at for example journalists, who only need a brief overview of the issues. Policy makers need much more! This is especially true for the tables SPM1 and SPM4. (Asa Sjoström, Swedish Meteorological and Hydrological Institute)	The underlying report provides more detail on each topic, in the locations indicated in the line-of-sight references to chapter sections.
46	63844	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: Box SPM.6 states "Determining whether anthropogenic interference is dangerous involves judgements about risks". The WGII report provides plenty of such judgements about risks, for example in Table SPM4, or Box SPM6. Figure 1. Box SPM.6 also states that "The IPCC cannot, however, make a determination of the level of anthropogenic interference that is dangerous". This is contradictory and the text should be revised. It should be clarified that the risk assessment provided by IPCC must not to be confused with the judgement about the danger associated with these risks. The two statements should be revised as follows: "Determining whether anthropogenic interference is dangerous involves risk assessment". "The IPCC provides information on the level of anthropogenic interference with the climate system and about the associated risks. The IPCC however, cannot make a determination of the level of risk that is dangerous as this involves value judgements". (GERMANY)	The text has been revised based on this helpful comment. Please see Box SPM.4.
47	63845	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: In general, the policy relevance, user friendliness (e.g. key figures) and readability (e.g. key terms and uncertainty) is highly appreciated. The SPM and TS contain very useful visual presentations on impacts, vulnerability and risks as well as potential response options, including information on their efficacy and potential interactions to decision making processes. These figures and tables, in particular Table SPM.4 and Figures SPM.5, need further improvement and simplification, specific comments are given below. (GERMANY)	Thank you for this input.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
48	63846	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: Information on the costs for different response options to alleviate climate change impacts (including risk management, adaptation, transformation) and on the costs of residual damages or of no-action is currently very limited in the WGII report. Please add available information on costs (for example, see EU Strategy COM(2013) 216 final) and an assessment of their validity. In addition the information on costs provided in the SPM is associated with low confidence. WGIII, in contrast, provides much more information on financial issues. This could suggest that mitigation is more expensive than adaptation. Although a full analysis of the linkages between mitigation ambition/cost of in-action and adaptation costs (including residual loss and damage) will be provided by the SYR, a statement on the relative amount of costs for mitigation and adaptation related to different emission pathways should be added to the SPM of WGII. (GERMANY)	Information on costs and the validity of cost estimates has been included in the SPM to the extent possible based on the underlying assessment of the available literature. Please see sections B-2 and C.
49	63847	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: The assessment of climate change impacts, vulnerabilities and response options is highly appreciated. However, to be really useful for decision makers, this information must be specified for different warming scenarios. (GERMANY)	The relationship between temperature and projected impacts has been characterized to the extent possible, based on the assessment of the available knowledge base. Please see section B especially.
50	63848	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: The focus on adaptation and its potential to mitigate adverse impacts of climate change is highly appreciated. However, the fact that a 4°C (or warmer) world may transgress physical or economic limits to successful adaptation constitutes a major concern for the future, and should be analyzed more clearly. Current Box SPM.7 is a good starting point, but may profit from more concrete examples (e.g. physiological limits of human endurance of temperature and humidity for outdoor work, low lying Small Islands/deltas coastal protection, sensitive ecosystems, (Arctic) indigenous peoples' culture). In addition, this Box should be moved to section B.i (Determinants and Iterative Management of Risk) or to section C.ii (Key and Emergent Risks), because considerations about limits of adaptation need to be considered within the decision making and are a part of managing risks through adaptation. (GERMANY)	The risks of large magnitudes of warming are addressed in section B-1 and Box SPM.4, and limits to adaptation are addressed in section C-2 (with examples relevant to such limits included in the discussion of future risks throughout section B). It is important to note that less literature and evidence is available for IAV at high magnitudes of climate change.
51	63849	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: The information about risk is presented in a very qualitative way (e.g. pictograms in Table SPM.4, reasons for concern, spider webs in Fig 5), but the foundations for the risk assessment are not transparent. Please explain how risk has been assessed for individual regions, sectors, or systems, and how aggregated statements have been obtained. If the assessment relies on expert judgment, please add a reference to a literature source giving the methodology for the judgment. We suggest providing the very important information in a box. (GERMANY)	Assessment of available evidence and agreement underlying such figures and tables are explained more clearly in the SPM, with more explanation of expert judgments made and with line-of-sight references to further description in the chapters of the report. Please see sections B-1 and B-3 especially.
52	63850	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: The information provided is currently not balanced across regions with a bias on industrialized countries. Given the fact that developing countries are affected more severely by climate change – in particular because vulnerability is larger in developing countries due to other non-climate stressors – specific information on developing countries is underrepresented in the SPM, e.g. in Tables SPM.4 or SPM.5. Please add specific examples focusing on regional, key as well as emerging risks for developing countries. (GERMANY)	The balance of information across regions has been improved.
53	63851	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: The report shows significant risks of global warming, clearly states that current mitigation and adaption action is not sufficient, but also shows options to embark on climate-resilient pathways, also taking into account the effects of non-climate stressors. These findings are highly policy relevant and summarized in two conceptual frame works presented by WGII: WGII notes that climate science provides sufficient information about an “opportunity space” for policy relevant information to support robust policy decisions aimed at climate-resilient pathways. WGII also introduces the conceptual framework of an era of responsibility and an era of climate options. However, the explanation of this framework should be improved. In addition, the link between the concept of an “opportunity space” and the two eras should be clarified in the SPM. Specific comments are given below in Ch 1, and TS. (GERMANY)	This explanation of the eras and their relationship to climate change responses has been improved. Please see section A-3 and C.
54	63852	SPM	0	0	0	0	THIS IS ONE OF THE HIGH PRIORITY COMMENTS OF GERMANY: We appreciate the focus on 2 and 4°C in the SPM. 2°C is highly policy relevant and should be easily assessable for the discussion under UNFCCC. As according to WGI and WGIII a temperature increase of 1.3°C–4.8°C (upper/lower boundary of RCP-ranges) can be expected for baseline scenarios (BAU, no significant mitigation, RCP6.0 und RCP8.5) the 2°/4°C is a good proxy to represent the relevant T-range by 2100. Please add a clear statement that beyond 2100 risks are going to rise due to further temperature increase in non-mitigation scenarios. The condensed format of Box SPM.5 showing the consequences of T-increases >4°C is very useful; please add information on the consequences of 2°C in a similar box. (GERMANY)	Section B-1 and Box SPM.4 address risks associated with large magnitudes of warming. Regional key risks associated with 2°C and 4°C are included in Table SPM.1. Section A-3 addresses the relationship between emissions scenarios and risks.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
55	63853	SPM	0	0	0	0	As seven out of nine paras of the executive summary of chapter 16 discuss limits of adaptation we feel this question has not been adequately addressed in the SPM. Please insert the main messages related to limits of adaptation into SPM sections C.ii. as well as into D.i. (GERMANY)	Limits to adaptation are addressed in section C-2 (with examples relevant to such limits included in the discussion of future risks throughout section B).
56	63854	SPM	0	0	0	0	Climate changed has been discussed in the frame work of international security at the UN Security Council. In addition, the security is important in the context of classifying climate change as "dangerous" according to Article 2 of the UNFCCC. Therefore, sufficient information on this issue should be provided in the SPM. For example, emerging risks to human security could be added to table SPM5 as a separate row, and information related to relevant issues such as violent conflict and migration may be added to the regional examples. (GERMANY)	These topics have been included in section B to the extent possible based on the assessment of the available knowledge base.
57	63855	SPM	0	0	0	0	Displaying "risk" in figures and tables: It would be very useful to always use the same color code for risk, e.g. yellow to red as in the reasons for concern across the report, e.g. in Table SPM.5 and Box SPM6. Figure 1. (GERMANY)	The reasons for concern focus on risk levels across magnitudes of global temperature increase, while Table SPM.1 focuses on risk levels across timeframes and the potential for adaptation and mitigation to reduce risks. Somewhat different visualization approaches have been taken given these differences.
58	63856	SPM	0	0	0	0	Increased information on the effectiveness and efficiency of international cooperation as well as options for improvement would increase policy relevance in the frame work of UNFCCC. The role of actors at different scales should be explained in the SPM. As the UNFCCC is the main addressee of the IPCC, information on experiences with and options for international cooperation should be enhanced, drawing on findings e.g. in Ch14, 15, and 16. (GERMANY)	The roles of actors at different scales is addressed in section C-1, and information on adaptation experience is provided in section A-2, to the extent possible based on the underlying assessment of the available literature.
59	63857	SPM	0	0	0	0	Information relevant to the objective of UNFCCC to limit global warming to 2 C or 1.5C wrt to pre-industrial conditions, and implications of larger temperature increases should be given. The reader should be understand what the implications of different levels of mitigation mean in terms of impacts, vulnerability and adaptation needs. Adding a visual representation of key impacts against temperature would be an asset. Currently, there is a very large emphasis on highly aggregated qualitative risk measures ("burning amber style" Fig SPM.6 and table SPM.4; and Figure SPM.5), which is not very explicit about what impacts could be expected at which degree of warming. (GERMANY)	The relationship between temperature and projected impacts has been characterized, based on the assessment of the available knowledge base. Chapter 19 connects the risk aggregated in the burning embers and RFCs with specific items mentioned in Article 2, such as food security.
60	63858	SPM	0	0	0	0	Please add information on F414climate change impacts on 'urban areas' from TS P 14 L 12-42 and TS P 42 L 19-47 to the SPM. Currently there is only one short para on urban areas in section C. This is not enough, given the large number of people affected. (GERMANY)	Further information on urban areas has been included+I70, based on the assessment of the available knowledge base. See, for example, section B-1.
61	63859	SPM	0	0	0	0	Please improve readability: include an explaining introduction at every chapter (good practice: P 5 L 10 ff., P 6 L 24 ff.), try to limit the core statements (= bold text ) up to a maximum of two lines, add more subtitles to help understanding of the structure (good practice: SPM =P9 L16 L31), possibly present all core statements (= bold text) in a table without any explanation for the "fast reader" at the beginning or the end of the report. (GERMANY)	Careful consideration has been given to the clarity of the SPM and the narrative flow through subsections.
62	63860	SPM	0	0	0	0	Please provide for each core statement the level of confidence/ agreement/ evidence (examples: page 3 line 54, page 5 line 44, p8 l23, p8 l30). Try to put the reference to the source chapters consistently at the end of a para or at the end of a bullet-point (e.g. page 14 line 16). (GERMANY)	Presentation of calibrated uncertainty language and line-of-sight references has been made consistent.
63	63861	SPM	0	0	0	0	Please use always pre-industrial conditions as reference period, and not the end of the 20th century. This would be extremely helpful for the UNFCCC. (GERMANY)	Temperature increases and their reference period are clarified throughout. In most cases, temperatures are presented relative to preindustrial levels.
64	63862	SPM	0	0	0	0	Replace in the whole chapter "race" by "skin color". Reason: it is scientifically proved that whole humankind belongs to the same race. (GERMANY)	This term has been clarified where used previously.
65	63863	SPM	0	0	0	0	The definitions of basic concepts should be improved, and changes wrt to AR4 should be clearly indicated. This concerns e.g. vulnerability (changed from AR4, exposure not included any more), transformation in the context of mitigation and adaptation (compare Glossaries in WGII and III), adaptation vs. transformation (the latter had been included in adaptation in AR4), climate-resilient pathways (mitigation+adaptation+??). (GERMANY)	Careful consideration has been given to the definitions of core concepts presented in Box SPM.1, and the WGII AR5 glossary contains definitions of many more terms, including climate-resilient pathways.
66	63864	SPM	0	0	0	0	The suggestions made to the individual chapters should be considered in the SPM and the TS, too. (GERMANY)	Yes, this recommendation has been followed.
67	63865	SPM	0	0	0	0	Use a short bold title for the tables, figures and the boxes for quick reading, and complement with additional more detailed explanation as needed (e.g. p21, p29), (GERMANY)	The clarity of table, figure, and box labeling has been improved, with further details provided for figures and tables in captions.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
68	65016	SPM	0	0	0	0	In general, this section seemed very choppy and broken up. This will be greatly increased when the Tables and Figures are inserted in the text. This was exacerbated by the number of different fonts and bolding. Perhaps formatting with a brief paragraph delimiting the major finding of a particular chapter or topic and having indented bullets related to that topic would help. For readability and comprehension by a non-specialist, I would suggest no more than one table and one or two figures per chapter that transmit the essence of the findings of that chapter. I found many of the figures way too complex. Even with some study, the salient point of some figures was not easily extracted. These figure are for non-specialists and may well be lifted for powerpoint presentations. A quick glance should be sufficient for the reader or viewer to get the gist of what is being transmitted. If one needs a long paragraph to explain the figure, it is not going to communicate ideas effectively. And, the loading of effectively three, four or even five small figures into on figure only exacerbates this problem. keep the material simple, as almost everyone looking at this chapter, including scientists will effectively be well educated lay persons unfamiliar with the fields being presented. GET RID OF ACRONYMS- they are for the initiated and members of a club. They exclude those not already in the know. This is particularly important in a general summary. (George Hunt, University of Washington)	The clarity of the SPM text, tables, and figures and the narrative flow through subsections have been improved. All acronyms are defined when first used, and their usage has been limited.
69	65367	SPM	0	0	0	0	The structure of the SPM is very clear and helpful and should remain as is. (Klaus Radunsky, Umweltbundesamt)	Thank you. The structure has been further improved with addition of chapeau text to explain material included in each section.
70	65368	SPM	0	0	0	0	the introduction of the new terms "era of climate responsibility" and "era of climate options" is fully supported. However, it is suggested to include those terms also in the glossary. This glossary should explain the underlying science that informs the length of of both eras. (Klaus Radunsky, Umweltbundesamt)	These eras have been clarified in section A-3.
71	65375	SPM	0	0	0	0	It is very much appreciated that section D addresses building resilience not only by adaptation but also through mitigation. (Klaus Radunsky, Umweltbundesamt)	Thank you. Please note that the relevant section is now section C.
72	65399	SPM	0	0	0	0	It is noted that the AR5 of WG II is rich in addressing ethical aspects of adaptation in various chapters. However, almost nothing can be found in the SPM that provides some insights into the growing literature related to questions of ethics, justice and responsibilities. The most visible indication might be the introduction of the concept of the era of responsibility. It is suggested to include one paragraph that summarizes the main findings related to the ethical aspects of climate change that have some relevance for the policymaker level. Such paragraph might be included section B.ii. (Klaus Radunsky, Umweltbundesamt)	This topic is now included to the extent possible based on the assessment of the available knowledge base. Please see sections A-3 and C.
73	65400	SPM	0	0	0	0	It is noted that the SPM of AR5 of WG II does not include information on the social costs of carbon. However, this parameter, describing globally aggregated impacts, is very policy relevant and countries, such as US and UK use a monetary figure to inform policy decisions. It would be helpful, e.g. to inform about the broad range of results and the main reasons for that uncertainty. (Klaus Radunsky, Umweltbundesamt)	Information on costs has been included in the SPM to the extent possible based on the underlying assessment of the available literature base and corresponding findings developed in the chapters. See section B-2.
74	65401	SPM	0	0	0	0	It is suggested to better link the messages included in the SPM by constructing an appealing story line linking the various bits together. One option could be to use the high level messages, written in bold letters to help the reader that is usually not an adaptation expert to provide some idea on the linkages. The following linkages might be important: adaptation-transformation-era of responsibility – era of options (geo-engineering); reasons of concerns; limits of adaptation; ethical issues; decision making under uncertainty. (Klaus Radunsky, Umweltbundesamt)	The narrative flow of the SPM has been improved.
75	65610	SPM	0	0	0	0	The language here is a problem. The formality may be necessary in the technical documents but here the priority should be effective communication to a lay audience. We should remember Cicero's words: "We should not merely write to be understood. We should write so as make it impossible to be misunderstood". This is a counsel of perfection but it should be our aim. Also, we should keep in mind the fact that the final words will be used by people who wish to deny the reality and seriousness of climate change. Specifically, then, much of the content should be rewritten in a direct style. We should use the most direct words available, eg 'increases' rather than 'changes'. (David Flint, Cass Business School)	Careful consideration has been given to the clarity of the SPM and the narrative flow through subsections.
76	65640	SPM	0	0	0	0	Given that this chapter will be read by non-specialists it would be helpful to make it easy to read. There are some horrible adjectival nouns in places which make it a bit clunky to read. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Careful consideration has been given to the clarity of the SPM and the narrative flow through subsections.
77	65849	SPM	0	0	0	0	the SPM and executive summaries need rewriting in style of an essay, with a cogent language, where logical conclusions come from the facts explained in the report. Right now, they are a mere sequence of detached statements, with only a weak link among them. Please see my comment above, on language. (Milton Nogueira da Silva, Climate Change Forum of Minas Gerais, Brazil)	Careful consideration has been given to the clarity of the SPM and the narrative flow through subsections.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
78	65877	SPM	0	0	0	0	There are many paragraphs in the SPM that are expressed in a way that seem to go beyond of a direct climate change Impacts, Vulnerability and Adaptation assessment, and transmit very general, ambiguous and undefined ideas associated with issues such as violence, gender inequality, poverty, economic crisis... Of course, impacts of climate change interact with all these factors to create additional vulnerabilities, but the message from AR5 loses strength if the accent is not focused on the direct impact of climate change. Another general comment is the few clear scientific findings that the SPM content, and the abundances of recommendations for the adaptation action (SPAIN)	The focus of the SPM is on climate change impacts, adaptation, and vulnerability, and the topics mentioned here can be determinants of vulnerability and impacts and are discussed in this context. Given that climate change unfolds in the context of multiple stressors and other societal trends, this broader framing of the findings is essential for communicating the risks of climate change. The clarity of SPM text has been improved.
79	66049	SPM	0	0	0	0	The use of multiple baseline periods should be avoided. It is confusing that several time periods are used in SPM to which the global temperature rise is compared to: preindustrial, early industrial (1986-1905), 1986-2005 and 1906-1925. (FINLAND)	Temperature increases and their reference period are clarified throughout. In most cases, temperatures are presented relative to preindustrial levels.
80	66050	SPM	0	0	0	0	Figures and their captions need simplifying; some examples are given below. (FINLAND)	The clarity of figures and their captions have been improved.
81	66051	SPM	0	0	0	0	The degree of evidence, agreement and confidence is not always indicated. We propose that these should be indicated where ever possible. (FINLAND)	Calibrated uncertainty language is now used consistently throughout.
82	66104	SPM	0	0	0	0	Adaptation planning and policy (decision making) are discussed (at least) in two Sections, namely B and D, of the SPM. I would suggest that issues concerning adaptation policy, decision making and planning would all be treated in one Section. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	Much of the material in the previous section B on these topics is now presented with material from the previous section D, as suggested. Sections A-2 and A-3 discuss experience with adaptation and the decision-making context, while section C discusses principles for effective adaptation, as well as climate-resilient pathways and transformation.
83	66142	SPM	0	0	0	0	There is no text for region impacts. Needs to be some that summarises the main conclusions. (Martin Parry, Imperial College)	Regional key risks are highlighted in section B-3.
84	66145	SPM	0	0	0	0	Overall: a) need to ensure the top 3 to 5 main messages for policy makers comes through at the front; b) there is a mass of detail in tables, but these each next short bullet-pointed texts which draw out the main conclusions from the tables. C) The SPM is overall quite long, quite detailed and quite technical: suggest paring it down to the essential messages for policymakers. (Martin Parry, Imperial College)	The clarity and focus of the SPM on policy-relevant findings has been improved. The number of tables and figures has been reduced.
85	66268	SPM	0	0	0	0	This is a very encouraging first draft of the SPM. The key statements seem reasonable enough, and some of the illustrations and Tables are promising. However, I would like to see a few more innovative figures like Fig SPM.3, and somewhat less detail in some of the Tables (especially Table SPM.4). I'm not convinced that we need to reproduce WG I figures in their original form - can't we adapt their findings somehow in more novel ways (I don't have ideas right now!) that allow us to bridge to the issues treated in WG II? Moreover, there is some new material on regional climates, including extremes, in Chapter 21 that might merit closer examination for the SPM. Finally, an iconic map of key risks would be useful, merging hot spots with key vulnerabilities/thresholds (refining Figure SPM.6 - something that Chapter 19 could work on). (Timothy Carter, Finnish Environment Institute)	Careful consideration has been given to the content and presentation of figures and tables in the SPM, with an emphasis on integration of material across the underlying assessment and illustration of key messages.
86	67945	SPM	0	0	0	0	Ocean acidification is only noted in some places (coastal waters (p10), polar regions (p20), Australasia (p27), small islands (p28), and Table SPM 5 (p29)). Ocean acidification has been recognized as an critical issue as WGII held a workshop in Okinawa, so, it can be highlighted in one paragraph in Section A.i. Observed Impacts and Vulnerabilities. In WGI AR5 SOD SPM, one of seven figures is about acidity of ocean water (Figures SPM.2). (JAPAN)	This topic has been incorporated to the extent possible, based on the assessment of the underlying knowledge base. In particular, future risks associated with ocean acidification are addressed in section B and Figure SPM.6.
87	67946	SPM	0	0	0	0	It is worth noting in SPM that there have been significant developments in climate information and services since the release of AR4, as is exemplified by the launch of Global Framework for Climate Services (see Chapter 2). It would be, therefore, useful for policy makers to quote in SPM the relevant paragraphs from Chapter 2 which describe the concept and potential of climate services in the context of adaptation and decision making. (JAPAN)	Decision support is addressed in section A-3, based on the underlying chapter assessment.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
88	67947	SPM	0	0	0	0	In reading AR5/WG2/Ch.19, we understand the importance of both adaptation and development pathways that may affect risks of RFCs. In Box SPM.7 Figure 1, very informative chart of the relationship between acceptable risks, tolerable risks and adaptation limit is shown. By the same token, Figure 19-6 in Chapter 19 of AR5/WG2 that shows the importance of development pathways that affect vulnerability of society should be added to SPM. (JAPAN)	The extent to which risks can be reduced through adaptation and mitigation is now highlighted further in section B. The effect of development pathways on vulnerability is also emphasized in the SPM. Additionally, adaptation limits are highlighted in C-2, although it is impossible to do so to the extent of the underlying chapter given SPM page constraints.
89	67948	SPM	0	0	0	0	Some conclusion including Burning Ember (Table SPM4, Box SPM6 Figure 1) was derived by "Expert Judgment" It is understandable that sometimes expert judgment is necessary. However, the IPCC is basically making an assessment by using reviewed papers and therefore, expert judgment on the part of LAs should be avoided as much as possible. (In this case, it is principally described the way of judgment with an understandable manner as we often judge a paper to accept for a journal during reviewing.) However, in the Burning Ember in Table SPM 4 does not provide any logical reason for judgment, which cannot be found in the underlying chapters as well; and in the Burning Ember in Box SPM 6 Figure1, it is not clear how the dangerous temperature range was described. The LAs have to make an effort for the reviewers about the reason of their "expert judgment". Unless this, the "expert judgment by LAs" make the current IPCC Review process meaningless. Please eliminate such Expert judgment. (JAPAN)	The evidence and assessment underlying these elements are now explained more clearly in the SPM and in the underlying chapters of the report. Expert judgment is an important component of the assessment process, for example as outlined in the uncertainties guidance for authors and as explained in the underlying chapters where expert judgments inform assessment of key risks and the reasons for concern.
90	67949	SPM	0	0	0	0	Figure SPM5: This figure compares estimated risk of climate change of +2 degree C and +4 degree C. On the other hand, the allowance for carbon emission are largely different even between 2.5 and 3 degree C, and the difficulty of mitigation depends on the amount of carbon emission. Therefore please add the climate change effects of 3.0 degree C. If the sensitivity of climate change effects are not enough for addition of 3.0 degree, please describe that the sensitivity is not enough for compare the difference 2, 3, 4 degree C. (JAPAN)	The relationship between temperature and projected impacts has been characterized to the extent possible based on the assessment of the available knowledge base. Please see section B.
91	67950	SPM	0	0	0	0	Many of the discussion in WG2 are based on scientific and social scientific results. However, most of them have uncertainty. Therefore please discuss the uncertainty caused by using the Decision cycle which is discussed in Chapter 2. (JAPAN)	Decisionmaking under uncertainty is a theme throughout the SPM and is addressed particularly in section A-3.
92	67951	SPM	0	0	0	0	Differences from and advancement since AR4 in findings are not succinctly summarized, but should be formulated herein. Without such information, policymakers could not orient themselves or make decisions based on the past experiences and learning. (JAPAN)	This information is provided in the underlying chapter assessment, but the space constraints in the SPM do not allow for presentation of these details.
93	67952	SPM	0	0	0	0	Throughout the report, there are insufficient references to Asia. We suggest to include more findings about Asia, Such inclusion helps covering a vast area with a large population and various climate change-related impacts in all corners, and therefore a large number of vulnerable people. Asia embraces a large number of policy-makers who are in need of regional information. (JAPAN)	Regional information is presented in a variety of ways in the SPM. For example, observed impacts are highlighted in Figure SPM.2, regional experience with adaptation is highlighted in section A-2, and regional key risks are highlighted in section B-3. Throughout, regional chapters are also included in the line-of-sight support for general findings.
94	68152	SPM	0	0	0	0	Some of the conclusions are not marked with a confidence level. Please add it according to the Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties (6-7 July 2010) to avoid any inconsistent/divergent formulation like "low to medium confidence", "high to very high confidence" or "medium to high confidence". (CHINA)	Calibrated uncertainty language is now used consistently throughout.
95	68241	SPM	0	0	0	0	"Summary for Policymakers" as well as Technical Summary paid practically no attention to geoengineering options though such options are discussed in many chapters of WGII SOD. However, nowadays it becomes more and more clear that only geoengineering approach can efficiently stave off potential climatic crisis in the second half of the 21-st century. It should be also kept in mind that climate engineering does not replace any mitigation measures. Such approaches have their own significance and can be applied in parallel with geoengineering. (RUSSIAN FEDERATION)	This topic has been incorporated to the extent possible, based on the assessment of the underlying knowledge base. The effect of geoengineering strategies on level of climate change is assessed in WGIII, whereas their effects on the physical climate system are assessed in WGI. Only the more narrow assessment of consequences for human and natural systems is included in WGII, and the topic is only addressed in a handful of chapters. Integrated synthesis across the Working Groups will occur in the Synthesis Report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
96	68302	SPM	0	0	0	0	It seems that the SPM does not strongly reflect the African chapter 22. With an eye on this, please take into consideration to elevate some relevant statements from chapter 22 to the SPM. (NETHERLANDS)	Regional information is presented in a variety of ways in the SPM. For example, observed impacts are highlighted in Figure SPM.2, regional experience with adaptation is highlighted in section A-2, and regional key risks are highlighted in section B-3. Throughout, regional chapters are also included in the line-of-sight support for general findings.
97	68303	SPM	0	0	0	0	Please note that New Zealand results are frequently omitted from Australasia summaries, even where they are reported alongside results for Australia in the Chapter 25. (NETHERLANDS)	Information on New Zealand has been included, consistent with the assessment in Chapter 25.
98	70232	SPM	0	0	0	0	As so many references are made to the report of WGI, it is sometimes difficult to make judgements about accuracy and content. (SWEDEN)	All references to WGI have been confirmed for accuracy, and the specific statements they are support have been indicated more clearly.
99	70233	SPM	0	0	0	0	The SPM is in several places rather specific on isolated details. The clarity of the conveying of the assessment results could benefit on less specific detail and more focus on the "big picture". For example, rather than referring to various SRES and RCP scenarios when presenting finds, global mean temperature change could be used as the red thread instead. Also, the tables and figures in many occasions would seem to provide very much detail and may be overly complex for the purposes of the SPM. (SWEDEN)	The clarity and focus of the SPM on policy-relevant findings has been improved. The number of tables and figures has been reduced.
100	70280	SPM	0	0	0	0	Expressions "era of climate responsibility" and "era of climate options", which are used a few times in the SPM (e.g. page 8, line 19; page 9, line 12; page 13, line 22, 29-30; Table SPM.4) should be defined if they are needed. (SWEDEN)	These eras have been clarified in section A-3.
101	70281	SPM	0	0	0	0	It is important that the numbers on estimated future sea-level rise are internally consistent within the chapter, and are in agreement with the corresponding material from WGI. In the second order draft of WG II different estimates can be found for example on page 4, line 29, on page 15, line 18 and in Table 5-1. (SWEDEN)	The WGII assessment must reflect the projections that have been used in the literature to evaluate impacts. Careful coordination with the WGI assessment has been ensured.
102	70282	SPM	0	0	0	0	The SPM is to som eextent too general and sweeping i its statements to be of use to policy makers. This is especially true for the tables SPM1 and SPM4. (SWEDEN)	The clarity and focus of the SPM on policy-relevant findings has been improved. The number of tables and figures has been reduced.
103	70316	SPM	0	0	0	0	Good to see that in AR5 also the risks of high end (=with low properbility) are discussed. But always - also in the SPM there should be a distinction between likely effects/impacts on one hand and these -less likely with often low confidence - high end impacts on the other. This distinction is often not clear. Now the question pops up why include statements in teh SPM that have a low confidence. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	These characteristics have been clarified as much as possible. Assessment of the full range of potential future impacts, including low-probability outcomes with large consequences, is central to understanding future risks and the benefits and tradeoffs of alternative risk management actions.
104	70317	SPM	0	0	0	0	There are quite some general statements in the SPM. I wonder why they are needed here. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The clarity and focus of the SPM on policy-relevant findings has been improved.
105	70318	SPM	0	0	0	0	Although mentioned at different places in the SPM, more attention could/should be iven to the oppertunities. Clear focus is now on negative impacts. E.g. Tabel SPM1 contains one one positive effect in Central & South America. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Positive impacts and potential benefits are presented in the SPM, to the extent supported by the underlying knowledge base.
106	70319	SPM	0	0	0	0	many stated cliamte chagne impacts are illustrated by examples of climate/weather extremens. As such extremens have always occurred, the link to climate change is not always valid. Given increasing impacts (in frequency or extent) is often more related to socio-ecomic developments and less to cliamte change. As such, some of them are less relevant for SPM. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The relationship between climate change and extreme events and its relevance for understanding risks arising from climate change is considered carefully in associated statements. Climate extremes are an important component of understanding the impacts of climate change as well as vulnerability to climate change. The reviewer is referred to WGI for specific findings on which types of extreme events have changed in frequency or magnitude due to climate change.
107	70320	SPM	0	0	0	0	Given confidence levels need more attention. Soemtimes these levels given in headers of paragraphs are not consistent with underlying tekst. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Calibrated language is used consistently throughout the SPM, and usage is explained in Box SPM.2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
108	70321	SPM	0	0	0	0	It is often mentioned that impacts are caused by certain changes in temperatures. Sometimes unclear whether these given temperature changes are global or local numbers (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The reference period and spatial scope for all temperatures has been clarified.
109	70322	SPM	0	0	0	0	I wonder why mostly high end scenarios are chosen to describe in detail (e.g. Box SUM.4 Figure 1). The RCP2.6 is mentioned sometimes in the tekst, but (more limited) impacts are not shown. I see this as a kind of biase, may be given from one of the general objectives of the WGII report (showing teh urgency of the problem). Nevertheless, the differnt RCPs have been constructed to show the uncertainty. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Future risks across scenarios are presented based on the underlying assessment of the knowledge base. Literature within the scope of WGII using RCP 2.6 is limited.
110	70401	SPM	0	0	0	0	In the TS and SPM of this report, the concept of Exposure is exactly the same as in the Summary for Policy Makers of the SREX (2012). However, its accuracy should be enhanced by adding at the end (after "in places that could be adversely affected"): by a hazard in this case related with climate variability or climate change. (COLOMBIA)	The relevant scope of hazard types considered is specified within the definition for impacts and is not repeated within the definitions for vulnerability and exposure.
111	70402	SPM	0	0	0	0	In the TS and SPM of this report, the concept of Vulnerability to climate chang is he same as in the Summary for Policy Makers of the SREX (2012). However, it is different from the one published in the Fourth Assessment Report (2007), which may cause confusion among people working in this topic. In the Fourth Assessment Report the concept was "The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, the sensitivity and adaptive capacity of that system", and here the concept was summarized as "The propensity or predisposition to be adversely affected". Based on the concept published in the Fourth Assessment Report most of the current studies related to vulnerability analysis have been done based on the issue that we should consider: Exposure Sensitivity and Adaptive Capacity (some examples of studies applying this conceptual framework are listed below). In this sense, the Fifth Assessment Report should make clear if the concept of Vulnerability changed or if it's still being considered as a function of the Exposure, Sensitivity and Adaptive Capacity of the system. In the Chapter 14 this clarification is done, but this is not reflected in the TS and SPM. • Klausmeyer K.R., M.R Shaw , J.B MacKenzie, and D.R Cameron 2011, 'Landscape-scale indicators of biodiversity's vulnerability to climate change', Ecosphere, 2 (8), p. 1-18, viewed 18 Mayo 2013, <a href="http://www.esajournals.org/doi/full/10.1890/ES11-00044.1">http://www.esajournals.org/doi/full/10.1890/ES11-00044.1</a> • Glick P., B.A Stein, and N.A Edelson, 2011, Scanning the Conservation Horizon: A Guide to Climate Change Vulnerability Assessment, National Wildlife Federation, Washington, D.C, viewed 18 Mayo 2013, <a href="http://www.nwf.org/News-and-Magazines/Media-Center/Reports/Archive/2011/Scanning-the-Horizon.aspx">http://www.nwf.org/News-and-Magazines/Media-Center/Reports/Archive/2011/Scanning-the-Horizon.aspx</a> • Institute of Hydrology Meteorology and Environmental Studies of Colombia - IDEAM, 2010, 'Chapter 4 Vulnerability', Second National Communication of Colombia to the United Nations Framework Convention on Climate Change, Bogota, Colombia, viewed 18 May 2013, <a href="https://documentacion.ideam.gov.co/openbiblio/bvirtual/021658/021658.htm">https://documentacion.ideam.gov.co/openbiblio/bvirtual/021658/021658.htm</a> • Global Adaptation Index - GaIn: <a href="http://gain.globalai.org/">http://gain.globalai.org/</a> • EEA 2008, 'Chapter 6 Adaptation to climate change', Impacts of Europe's changing climate - 2008 indicator-based assessment, EEA Report No 4/2008, Copenhagen: <a href="http://www.eea.europa.eu/publications/eea_report_2008_4">http://www.eea.europa.eu/publications/eea_report_2008_4</a> (COLOMBIA)	Box SPM.1 now includes a footnote highlighting that some definitions differ from previous IPCC reports. Vulnerability is defined in this box, and its role as a core concept is highlighted in the introduction to the SPM and in section A-1.
112	70403	SPM	0	0	0	0	The Figure "Schematic of the interaction among the physical climate system, exposure, and vulnerability producing risk" (Figure TS.2. and SPM.1), is very clear and useful to understand Risk. However, in the figure it should be visible how Vulnerability is being considered (as a function of Exposure, Sensitivity and Adaptive Capacity? or just the suceptibility to suffer loss or damage?). As an evolution of the Figure presented in the SREX (2012) it is here clear that you are considering Exposure with Vulnerability (within the same circle), which makes sense. However, the figure could be clearer (the Exposure is an internal condition of the Vulnerability? no Exposure means no Vulnerabiliry? what about Sensitivity and Adaptive Capacity?). The Figure seams conceptually congruent with risk definition, but not with vulnerability definition (which is clarified in the Chapter 14, but not in this figure). (COLOMBIA)	The relationship between hazards, exposure, and vulnerability as determinants of risk has been clarified in the figure.
113	70404	SPM	0	0	0	0	In the TS and SPM of this report, the definition of "emergent risk" is not as clear as the concept of "key risk". Even though there are some examples of "emergent risks" in this part of the report, the definition should be clearly presented before these examples. Also, because the Figure TS.2 shows the concept "emergent risk" and indicates that the definition will be foun in Section C.ii. (COLOMBIA)	This term is no longer used in the SPM.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
114	70405	SPM	0	0	0	0	This is a suggestion for the "Table TS.8. and SPM.5": this Table shows a column with the title "Key vulnerabilities", however the content of some rows does not reflect what is the key vulnerability of the item analyzed. This is the case of: "Vulnerability of aquatic systems and vulnerability of aquatic services..." or "Increasing vulnerability of small landholders in agriculture". This column should be revised in order to make clear what is making each item more or less vulnerable (its exposure or sensitivity or adaptive capacity or all of them, instead of its vulnerability which is too general). In the page 69, question 5, of the Frequently Asked Questions, there is a list of considerations of a "key vulnerability" which should be consistent with what is showed in this Table as an example. (COLOMBIA)	This table has been removed.
115	70406	SPM	0	0	0	0	If these are summaries for technicals (TS) and policy and decision makers (SPM), it is desirable to include a brief summary of Adaptation Assessments, which is presented in the Chapter 14. Decision makers do not have clarity about how to design, prioritize, and evaluate adaptation measures. Also, this is useful for technicians and scientists. (COLOMBIA)	This topic is addressed in section A-3 of the SPM, and in more detail in the Technical Summary and underlying chapters.
116	70587	SPM	0	0	0	0	The glossary is a good idea. Might want to include meaning of "natural" system (some policy makers assume this means undisturbed systems); may also wish to describe what is meant by "human systems", and also "uncertainty" (NEW ZEALAND)	"Human system" and "uncertainty" are included in the WGII Glossary, but due to the limited space in the SPM not all terms can be included in the subset presented in Box SPM.1.
117	70588	SPM	0	0	0	0	In each of the paragraphs that begin with a statement in bold, followed by further information, there is some inconsistency in providing the level of "confidence" to both the bolded statements and to the further information i.e. some paragraphs do not include the level of "confidence" e.g. lines 44 to 48 on page 5. Please make a generic request to the authors to check that all paragraphs include this information as appropriate. (NEW ZEALAND)	Calibrated uncertainty language is now used consistently throughout. As now explained in Box SPM.1, within paragraphs of this summary, the confidence, evidence, and agreement terms given for a bold key finding apply to subsequent statements in the paragraph, unless additional terms are provided.
118	70931	SPM	0	0	0	0	As a summary for policymakers I think the current draft is somewhat too detailed. I suggest trying to focus more on the most important points and findings, and leave out some of the points listed now. I also think there is a tendency to list many factors that interact and are potentially important, while more emphasis could be given to what are the main factors and "forcers" and how these affects vulnerabilities, adaptation etc. Some statements sound obvious as formulated now and could be left out or expanded with more explanation of why this is important. (Fuglestedt Jan, CICERO)	The clarity and focus of the SPM on policy-relevant findings has been improved.
119	70952	SPM	0	0	0	0	The writing team is commended for organizing the SPM in a manner that enhances its policy-relevance. However, further effort is needed within the text itself to use language that speaks to decision-makers. Recommend carefully editing to ensure a consistent style of writing, especially with respect to the bold statements. (CANADA)	Careful attention has been given to the clarity and consistency of wording in the SPM.
120	70953	SPM	0	0	0	0	It would be useful to have a better figure to illustrate the impact of climate change by degree of warming. Figure SPM 3 does it for species and Figure SPM 5 provides such an attempt by region, but it is hard to differentiate what is a "high risk on human health" compared to a "medium risk on human health" without having an example directly in the figure. The text could also provide a better summary of the projected impacts by degree of warming. For example, some text could be added to Box SPM 5 to include a description of the projected impacts for a two-degree warming, similar to the description provided for a 4+ warming. (CANADA)	The relationship between temperature and projected impacts has been characterized in section B, based on the assessment of the available knowledge base. Both Table SPM.1 and Box SPM.4 Figure 1 provide particularly relevant information.
121	76132	SPM	0	0	0	0	Bullets in the SPM relative to chapter's 10 and 17 should be updated to reflect technical comments made on the main chapters. (UNITED STATES OF AMERICA)	All text has been updated to reflect the assessment in the WGII final draft chapters.
122	76133	SPM	0	0	0	0	In SPM and in Chapter 7, we recommend that the authors place climate in the proper relation to the food security system climate. As it stands, it is confusing. For example, SPM page 9, line 22 refers to food security but it is mainly relevant to production. Chapter 7 says the focus has broadened from production but it's unclear which parts of the food security system in addition to production are particularly vulnerable to climate change impacts. In addition, where can actions in other parts of the food security system increase/decrease system-wide vulnerabilities that can be triggered by climate-sensitive production? This question needs to be dealt with in Chapter 7 and the resulting key points incorporated into SPM. (UNITED STATES OF AMERICA)	All text has been updated to reflect the assessment in the WGII final draft chapters.
123	76134	SPM	0	0	0	0	It is not clear how level of confidence, agreement, and/or evidence is selected and when it is provided. Might it not be better to have agreement estimates given after evidence estimates if they indicate the degree to which the lines of evidence agree? (UNITED STATES OF AMERICA)	Calibrated uncertainty language is used consistently throughout the SPM, and agreement terms are now given after evidence terms.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
124	76135	SPM	0	0	0	0	It is suggested that the authors include a summary of the state of urban adaptation planning around the world. Consider the following reference: Carmin, JoAnn, Nikhil Nadkarni, and Christopher Rhie. 2012. Progress and Challenges in Urban Climate Adaptation Planning: Results of a Global Survey. Cambridge, MA: MIT. (UNITED STATES OF AMERICA)	Urban adaptation is addressed in section B-2.
125	76136	SPM	0	0	0	0	It seems that the SPM should address the interaction of changes due to changing rainfall or melting glaciers with changes caused by human activities, or similar confounding anthropogenic contributions to other changes that climate change may also induce? If not, it might be best to state explicitly that these assessments strictly regard findings of changes attributed to climate change, clearly demarcated from other factors (and perhaps that, where this disentangling of factors is difficult, the confidence level is reduced). (UNITED STATES OF AMERICA)	The SPM focuses on presenting changes attributable to climate change, with the details of the methods for doing so and influences of other factors addressed in the Technical Summary and the underlying chapters.
126	76137	SPM	0	0	0	0	National Wildlife Federation, along with many US Federal Agencies, have developed a Climate-Smart Conservation Cycle Figure that is applicable to adaptation planning in general - it can be found at the following link on p 3. and should be considered for inclusion: <a href="http://www.nwf.org/~media/PDFs/Global-Warming/Climate-Smart-Conservatio...">http://www.nwf.org/~media/PDFs/Global-Warming/Climate-Smart-Conservatio...</a> (UNITED STATES OF AMERICA)	Thank you for this input.
127	76138	SPM	0	0	0	0	Suggest that the authors add the conclusions from Chapter 28.2.4 to the Executive Summary. (UNITED STATES OF AMERICA)	This material was considered, but was not included given space constraints in the SPM. Section A-2 provides a bullet relevant to effects on Arctic residents.
128	76139	SPM	0	0	0	0	The authors are strongly encouraged to provide consistent inclusion of the bases (evidence available, degree of agreement) for stated levels of confidence, or else an up-front explanation of how the two are generally connecte. It would be nice to be able to know whether the assignment of a medium level of confidence is based on medium evidence and medium agreement, or limited evidence and high agreement, for example. At minimum there should be an explanation of why this information is not always included. (UNITED STATES OF AMERICA)	The evaluation of evidence and agreement underlying confidence statements is provided in the chapter sections indicated by line-of-sight references in brackets in the SPM.
129	76140	SPM	0	0	0	0	The SPM mentions (many mentions) of a 2 to 4 degree C increase in temperature whereas the chapter (chapter 13) mentions a 4 degree, but does not indicate F or C nor an increase. For example in the summary: page 13, line 23 and line 42. Page 15, lines 13 and lines 21-36 Page 16, line 27 This should be clarified. (UNITED STATES OF AMERICA)	Temperature increases and their reference point are clarified throughout.
130	76141	SPM	0	0	0	0	The term "risk management" should highlight the framing for adaptation. "Risk management" is accurate, neutral, and persuasive. (UNITED STATES OF AMERICA)	This is framing is presented in the first paragraph of section A-3.
131	76142	SPM	0	0	0	0	The treatment of food security omits what seems to be a key take-home point from Ch 7 (page 2, lines 49-53), which is that under high warming scenarios (4-6 deg C above baseline), global risk to food production and security becomes very severe (med evidence, high agreement). (UNITED STATES OF AMERICA)	This topic is addressed in sections B-1 and B-2, based on the assessment in the final draft of Chapter 7.
132	76143	SPM	0	0	0	0	There first finding of the SPM Executive Summary illustrates an issue of signifcant concern for the SPM in general - the translation of findings from the underlying chapter to the SPM. This finding (pg 3, lines 15-22) is almost a quote from the Executive Summary of Chapter 18. It is the "almost" that is troubling. The SPM statement includes a confidence statment (high confidence) that is not present in the chapter text. Also, the SPM statement includes detail that is not present (and omits detail that is present) in the Chapter 18 text. These inconsistencies are troubling as it is difficult to compare the text word for word and the authors need to take great pains that the SPM in particular, faithfully represents the findings of the underpinning material. The authors are strongly encouraged to compare the latest version of chapter text to the translated highlights in the SPM and to avoid departures from the chapter text. (UNITED STATES OF AMERICA)	All SPM text is carefully considered to ensure traceability to the assessment in the underlying chapters of the report, as indicated by the line-of-sight references provided in brackets. SPM text integrates material from across these chapters, and will not always match chapter text word-for-word.
133	77421	SPM	0	0	0	0	SPM is weak and couched in vague and bureaucratic language. Its impact on policymakers is going to be similar to that of earlier reports, i.e. no impact. It is useless for policy makers—it tells them what will happen with what degree of confidence but contains no clear-cut policy prescriptions to be followed. It will probably appeal more to the university professors and researchers than to the policy makers. Better would be to give priority-wise policy prescriptions and suggestions, giving countries and regions enough flexibility to adapt to their particular situations. (Himangana Gupta, Panjab University, Chandigarh, India)	The mandate of the IPCC is to assess the knowledge base and present policy-relevant but not policy-prescriptive findings.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
134	77515	SPM	0	0	0	0	It seems remiss not to have even a short paragraph on geoengineering in the SPM, which should read along the lines of the conclusions of every major study that has examined the issue to date: solar geoengineering (SRM) could be very helpful in reducing a very large number of the risks associated with climate change if it can stop rises in global temperatures, but it might have a large number of physical and sociopolitical risks of its own, and the potential benefits and drawbacks are still not well understood. A slightly longer summary paragraph (which I feel is warranted by an issue of such magnitude) would helpfully list some of the potential benefits (eg reducing physical impacts - reductions in temp changes, extreme weather events, hydrological cycle changes, pressure on ecosystems, then knock-on socio-political effects on climate-caused poverty and insecurity etc), and also some of the potential risks (ozone depletion, unpredicted side effects, international tensions, reduction in will for mitigation and adaptation) (Andrew Parker, Harvard Kennedy School)	Coverage that appropriately reflects the assessment of the available knowledge base has been considered. The effect of these geoengineering strategies on level of climate change is assessed in WGIII, whereas their effects on the physical climate system are assessed in WGI. Only the more narrow assessment of consequences for human and natural systems is included in WGII, and the topic is only addressed in a handful of chapters. Integrated synthesis across the Working Groups will occur in the Synthesis Report.
135	77525	SPM	0	0	0	0	The word "race" should not be used in the report (SWITZERLAND)	This term has been clarified where used previously.
136	77526	SPM	0	0	0	0	The word "track" should not be used to describe the ability of species to adapt to climate change (SWITZERLAND)	This term is used in the context of species movement compared with the velocity of climate change, and its usage has been clarified in the text.
137	77548	SPM	0	0	0	0	The text should be much more concrete to give guidance to policy makers for making good decisions. For this, it would help if the developing and developed world would be dealt with separately in many places, as the problems and decisions needed are often different (Juha Pekkanen, National Institute for Health and Welfare)	Regional information is presented in a variety of ways in the SPM. For example, observed impacts are highlighted in Figure SPM.2, regional experience with adaptation is highlighted in section A-2, and regional key risks are highlighted in section B-3.
138	77556	SPM	0	0	0	0	Mountain ecosystems deserves more attention (SWITZERLAND)	This topic is now included to the extent possible based on the assessment of the available knowledge base. Please see sections A-1 and B.
139	77557	SPM	0	0	0	0	There is a good balance of the mention of the needs of financial means and institutional capacities of developing countries (SWITZERLAND)	Thank you.
140	77986	SPM	0	0	0	0	The summary for policymakers is comprehensive, concise and easy to read. The summary's structure is clear. I appreciate the highlighting of crucial statements in bold type, and the specification of confidence, agreement and evidence levels. This way of presenting the findings is very helpful and makes uncertainties transparent. Also, the spatial differentiation of findings in urban and rural areas on the one side as well as larger world regions on the other side is excellent. (Marco Puetz, Swiss Federal Institute for Forest, Snow and Landscape Research WSL)	Thank you.
141	78000	SPM	0	0	0	0	The SPM, does not include new findings on the health effects of climate change. While, when looking throughout all chapters, there are numerous places where health is mentioned. I think a transchapter analysis of the health content, could substantially enrich the SPM, as well as making it richer than the AR4 SPM. Areas like rural, urban, health systems, nutrition, etc are all worthwhile to include in a more indepth analysis. The health summary is mainly building on a summary of the summary of the health chapter, as such, while some examples from other chapters are included in the table. A more strategic cross cutting approach is needed to enhance the richness in health of the 20 chapters. While this might have been difficult under the current time constraints - it would be worthwhile in its final round to engage. (Bettina Menne, WHO)	Issues related to health are now included to the extent possible based on the assessment of the available knowledge base. In particular, information is presented in sections A-1 and B.
142	78001	SPM	0	0	0	0	While the general added value of the health chapter is the mentioning more extended of the co-benefits, the summary in SPM is less clear/strong than the AR4 synthesis report. Maybe the authors might wish to re-evaluate based on the richness of some of the papers included to enrich with some facts the vague statement that is in SPM. In the further work in the synthesis report this could then be further analysed in a cross cutting mode. (Bettina Menne, WHO)	The clarity of text in the SPM on this topic has been improved. Please see section C.
143	78111	SPM	0	0	0	0	The "Introduction " section is pretty dry, may be a short reminder of the genesis towards AR5 would help the reader not familiar with IPCC type of publication and development process find his/her way more easily (Philippe MacClenahan, Synergies Environnement)	The introduction has been expanded.
144	78112	SPM	0	0	0	0	May be move Box SPM1 and SPM 2 at the end of the document with reference to them in the introduction for those who need further explanation on terminology (Philippe MacClenahan, Synergies Environnement)	This suggestion has been followed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
145	78120	SPM	0	0	0	0	Overall, the document seems to assume that policymakers are familiar with some of the jargon developed specifically for the IPCC process, e.g. climate-resilient pathways, reasons for concern, era of climate responsibility or climate options (Philippe MacClenahan, Synergies Environnement)	These terms have been clarified where they are used.
146	78121	SPM	0	0	0	0	Some figures such as Box SPM 3 Figure 1, Figure SPM 3 and Figure SPM 5 are not easily grasped for non specialists, they would deserve further comments beyond merely explaining what keys mean (Philippe MacClenahan, Synergies Environnement)	The clarity of all figures has been improved.
147	78133	SPM	0	0	0	0	The assessment in terms of time period climate responsibility (2030-2040) and climate options (2080-2100) is essential for decision making (page 13 line 22). I recommend to use this notation everywhere in the item C) Future risks and whenever possible. (Christiano de Campos, Petroleo Brasileiro SA)	These time periods are introduced in section A-3 and future risks that differences in future risks across these time periods are highlighted in sections B-2 and B-3 where supported by the assessment in the underlying chapters of the report.
148	79130	SPM	0	0	0	0	The SPM doesn't flow well. We would suggest that instead of dealing with observed and projected impacts separately, it would be better to present the key observed risks for a sector or region followed immediately by projected impacts. This would help to present the information in a much clearer way to the policymaker. Sections B and D are currently very long and could both be condensed. B and D also tend to be more philosophical. Whilst it is useful to have concepts explained, it would be more helpful to have them in text boxes or to use specific examples. For example, pg 7 lines 18 to 19 are self evident; there are adaptation options everywhere. We would prefer to see some examples of what has worked well, rather than sweeping statements such as this, which will not help the policymaker. The SPM could also benefit from having an exec summary or one-pager up front, giving the key messages (like the LWEC report cards, e.g.: <a href="http://www.lwec.org.uk/sites/default/files/Lwec_Report_Biodiversity_English_Web.pdf">http://www.lwec.org.uk/sites/default/files/Lwec_Report_Biodiversity_English_Web.pdf</a> - which also has a very clear overview of how confidence is assessed and presents clearly what is happening and what could happen). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The clarity and focus of the SPM on policy-relevant findings has been improved. The length of the document and the number of tables and figures have been reduced. Much of the material in the previous section B has been merged with material in the previous section D, in order to reduce the space between the presentations of observed impacts and future risks.
149	79131	SPM	0	0	0	0	Some specific comments on readability: • The sub-headings in capitals are not easy to read. • The figures are really helpful and will help with readability when they are brought into the text. • The case study examples in SPM2 are helpful but need to be dispersed within the text. • Information on specific regions and countries should be included within the Tables e.g. SPM1 rather than dispersed in sections as it muddles the key messages of the text. • The different roles for the actors appears muddled and may need to be separated out of the text into a table with key roles and remits by actors. • C) Future risks and choices is easier to read and more accessible than the other sections. • Figures need clear simple legends, before the detailed explanation of content. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The SPM has been formatted to improve readability. The previous table SPM.2 has been removed. Regional information is presented in a variety of ways in the SPM. For example, observed impacts are highlighted in Figure SPM.2, regional experience with adaptation is highlighted in section A-2, and regional key risks are highlighted in section B-3. Figure SPM.8 and Table SPM.2 address entry points and approaches in responding to climate change, and section C-1 addresses roles of actors. The clarity of figures has been improved, with greater usage of explanatory legends.
150	79783	SPM	0	0	0	0	In this SPM, examples/assessment of impact and risks are mainly related to RCP 4.5 and RCP 8.4, here for instance in Box SPM 5 impacts of more than 4 degrees Centegrades is described. The SPM of WGIII have an empasis of temperature increase of less than 2 (NORWAY)	The WGII assessment presents future risks over different timeframes and magnitudes of climate change, making these distinctions to the extent possible based on the assessment of the underlying knowledge base. Linkages to specific scenarios are provided where relevant.
151	79784	SPM	0	0	0	0	In our view it is an imbalance in the report as well as in the SPM and TS about the way mitigation options like nuclear power, REDD+ and biofuel is described. Such a balance is important since these are potential mitigation options in the WGIII part of A (NORWAY)	This topic is addressed in section C-2, and the relevance of mitigation options in reducing climate-related risks is explicitly noted. Please note that the full assessment of mitigation options occurs in WGIII, with the assessment here only considering interactions with adaptation and impacts.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
152	80299	SPM	0	0	0	0	We suggest to make it very clear which part of statements in this Summary for Policymakers are citing from/referring to the WGI AR5 report in contrast to referring to the underlying WGII Chapters. In many instances where physical climate change is being mentioned in the SPM, this is not clear at all and the reader is left with a situation where he/she has to verify for him/herself if the statements are part of the WGII assessment or references to the WGI report. Perhaps the line of cite to WGI AR5 Chapters can be added into the paragraphs rather at the end at the appropriate places to clearly make this distinction very clear? (Gian-Kasper Plattner, IPCC WGI TSU)	The references to WGI AR5 have been clarified.
153	80595	SPM	0	0	0	0	There is no content about "Transformation" in the SPM, which is a newly-added topic and hot topic in AR5. SUGGESTION: add content about "transformation" in SPM. (Jiahua PAN, Chinese Academy of Social Sciences)	Transformation is discussed in section C-2.
154	85193	SPM	0	0	0	0	This whole Chapter, and presumably the whole Rreport, is obsessed with the consequences of the assumption that the entire earth is warming, even as high as 4°C. The temperature has remained almost constant for 15 years, but there is no attempt to judge the mitigation of such a trend or its potential impacts. Also there is no mention of any impacts of the possible continuation of Northern Hemisphere cold winters. Then suppose there is warming? There is no evidence it is caused by carbon dioxide. and there are some human activities that may promote it. (Vincent Gray, Climate Consultant)	The WGII assessment presents future risks over different timeframes and magnitudes of climate change, based on the assessment of the underlying knowledge base.
155	66133	SPM	1	0	0	0	Box 1 and Box 2 Clarify where these are similar and where they differ from definitions in 4AR (Martin Parry, Imperial College)	A footnote is now provided on the box of terms (Box SPM.1) to indicate generally that definitions have been revised to reflect progress in science. Annotation is provided for each term accordingly in the glossary itself. For the calibrated uncertainty language, Chapter 1 provides extended introduction that includes historical context as well. Given space constraints, historical context is not provided in the summary for policymakers itself.
156	56980	SPM	1	1	1	1	Remove 2014 since it implies that the impacts, adaptation and vulnerability being the subject of the document refer to climate change of the year 2014 only (KENYA)	The title of the report includes the year 2014 and thus this cannot be changed here.
157	63291	SPM	1	1	1	1	General Comment: The SPM is a good and balanced reflection of the state of knowledge, however there are numerous occasions in the text where the language could be improved to provide greater clarity and highlight key messages. (IRELAND)	Revision of the document has aimed to improve clarity, conciseness, and focus on key findings.
158	63292	SPM	1	1	1	1	General Comment: Many of the figures and the captions are too complex and detailed for a non-technical policy audience. This needs to be addressed. Where a figure appears in both SPM and TS, then the text in the SPM can be edited to provide the policymaker a concise statement about what the figure means. The TS can address the detailed information. (IRELAND)	Revision of the summary for policymakers has aimed to clarify presentation of information in the figures, tables, and their corresponding captions. In many cases, further information is given in the technical summary as requested here.
159	63293	SPM	1	1	1	1	There is a need to provide additional introductory material to provide context as to why this information is being provided to policymakers, pointing to the options for practical responses to climate change. (IRELAND)	The introduction of the summary for policymakers has been expanded to provide further context as requested.
160	63295	SPM	1	1	1	1	General Comment: The choice of regional examples appears at times to be somewhat arbitrary, with limited region specific context. (IRELAND)	Improved balance of regional examples has been achieved in the revised summary for policymakers.
161	68304	SPM	1	1	1	1	It would be helpful if the SPM would start with a bulletwise executive summary of the most important key conclusions and what the main progress is compared to previous reports. In general, the SPM seems quite lengthy when combined with the large tables. Please be more specific in the conclusions. This will improve the readability. The conclusions about physical climate change seem to overlap with WG I. Perhaps these conclusions could be skipped here and focus can be given on the regional aspects. (NETHERLANDS)	The length of the summary for policymakers has been reduced substantially, to emphasize the key conclusions that represent advances in scientific and technical understanding. Information on physical climate change is provided only in the context of framing the presentation of risks, time frames for adaptation and mitigation benefits, and implications for response, where inclusion of information on the changing climate provides requisite context for understanding the working group II assessment.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
162	63294	SPM	1	1	1	50	The list of terms and concepts used needs further definition. A number of new concepts have been introduced in this document, these include "Key and Emergent Risks", "Eras of Responsibility and Options". The wording of the last two terms may need to be revisited or clarified (IRELAND)	Central concepts not defined in the box of definitions are now substantially clarified where they arise in the summary for policymakers. Such concepts include key risks, the near-term era of committed climate change, and the longer-term era of climate options.
163	61706	SPM	1	1	18	0	There is only very limited information about Europe in this chapter, besides the information in the tables. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Improved balance of information across regions has been achieved, with focused treatment provided for adaptation experience in section A-2 and key risks in section B-3.
164	58905	SPM	1	1	18	13	Somewhere in this summary, the extreme changes in cold mountains occurring already now but especially also in the future (deglaciation, lake formation, permafrost degradation, slope instability, snow conditions) should be mentioned: One sentence pointing to the rapid and drastic landscape transformation with its effect on water supply for surrounding lowlands, hydropower, tourism and hazard conditions would be appropriate. (Wilfried Haeberli, University of Zurich)	These impacts are now further highlighted in section A-1, as can be supported by findings available in the underlying chapters.
165	63290	SPM	1	1	44	55	Overall the SPM is a useful and well written document. However, it can and should be shortened e.g. in areas which are unnecessarily detailed. Make clear, direct statements in the SPM, provide the supporting discussion in the relevant section of the TS. (IRELAND)	The summary for policymakers has been substantially shortened as requested, with further detail provided in the technical summary.
166	60506	SPM	2	0	0	0	Please add a definition of resilience and of mitigation (Hélène CONNOR LAJAMBE, HELIO International)	A definition for resilience is provided in the technical summary. Mitigation is referred to in Figure SPM.8 as well as in the 2nd SPM table. However, to keep the box of definitions as short as possible, these additional terms have not been added to it.
167	65643	SPM	2	0	0	0	Should mitigation also be included in Box 1. This has a special use in the climate science community which is slightly different from wider societal usages. It might be worth defining "era of climate responsibility" and "era of climate options". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Mitigation is referred to in Figure SPM.8 as well as in the 2nd SPM table. But given that the concept is not central to the working group II assessment, a definition is not provided in the box of terms. The near-term era of committed climate change and the longer-term era of climate options are much more clearly defined in context, where they are introduced in section A-3 and then subsequently referred to in the SPM.
168	70932	SPM	2	1	2	8	A bit more introduction is, in my view, needed in order to set the scene. One could very briefly give the structure of the SPM and explain what the different parts (A - D) will focus on. (Fuglestedt Jan, CICERO)	Further introductory context is now given at the start of the SPM to orient the reader accordingly.
169	63867	SPM	2	1	3	0	Maybe present a more narrative introduction which explains the structure of the report and sets the following content of the SPM in the context of the other AR5-reports and the core questions of the work IPCC. Introduction is written too "technical". May be use better the "language" of the target group (= policy makers). (GERMANY)	More introductory context is now given at the start of the SPM to orient the reader. Additionally, language has been significantly clarified and simplified throughout.
170	63866	SPM	2	1	3	9	It is appreciated that IPCC has taken up and established the risk approach. This could be highlighted in the introduction. (GERMANY)	The concept and relevance of risk is now profiled at the start of the introduction.
171	66052	SPM	2	3	2	5	In general we propose that the introduction should be elaborated. For example the choice for the main structure of the SPM could be briefly explained. Some introductory text about the role of adaptation in the context of climate policy (mitigation + adaptation) already exists in this paragraph. We propose that the relationship between adaptation and mitigation would be clarified. (FINLAND)	Further introductory context is now given at the start of the SPM, including further description of structure. Figure SPM.1 now helps clarify the relevance of adaptation and mitigation.
172	68305	SPM	2	3	2	5	The general description of the WGII contribution lack some major components such as impacts and vulnerability. We suggest to add these concept, e.g.: "The Working Group II (WGII) contribution to the IPCC's Fifth Assessment Report (AR5) assesses the impacts of climate change on human and natural systems, vulnerability for these impacts, including risks and opportunities that arise from climate change, and how these systems can adapt to better cope with these impacts. New in this contribution to the AR5 is a strong emphasis on regions, in order to satisfy the growing need for geographically specific information in support of adaptation to climate change. The knowledge on the relations between adaptation and mitigation is also assessed in this contribution." (NETHERLANDS)	Impacts, adaptation, and vulnerability are now included in the 1st paragraph of the introduction.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
173	79785	SPM	2	3	2	5	We think that this paragraph should be rewritten using a wording more similar to the main report title (eg. "impacts", "adaption" and "vulnerability" should be mentioned in addition to "risks" and "opportunities"). (NORWAY)	Impacts, adaptation, and vulnerability are now included in the 1st paragraph of the introduction.
174	62668	SPM	2	4	2	4	Could we change the first "risks" to "impacts" and keep the second "risks" in order to completely reflect the WG2 contribution to AR5? I am not sure that the risks here could be referred to severe adverse impacts? Risks are often induced by hazardous or extrem events? It seems to be easy confusing with the risks that are concerned in SREX? (RONGSHUO CAI, Third Institute of Oceanography)	Impacts are now referred to explicitly in the 1st paragraph. Further clarification of the concept of risk is provided through the added figure (SPM.1) in the introduction.
175	57776	SPM	2	4	2	22	Having a unique definition of "climate change" in WGII hinders the communication of the results to others. At times it appears that it even confuses the authors of the WGII report. Is there a effort to standardize the definition for future IPCC Assessments? I believe such an effort is needed. - At local scales, mixing climate change due to changes in radiative forcing of the planet with natural variability makes it very difficult for the reader to know if an adverse impact is due to climate change from some externally forced trend or experiencing changes due to natural variability. (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	The definition of "climate change" is common to the 3 working groups, and thus it is not unique to working group II.
176	56319	SPM	2	12	0	0	I suggest including a definition for Resilience in Box SPM.1 (Paul WOODS, World Vision)	A definition for resilience is provided in the technical summary. But to keep the box of terms in the summary for policymakers as short as possible, the term is not included here.
177	62655	SPM	2	12	0	0	Box SPM1. Comment: The important concept of resilience has been omitted here. This should be included. (Anirudh Singh, University of the South Pacific)	A definition for resilience is provided in the technical summary. But to keep the box of terms in the summary for policymakers as short as possible, the term is not included here.
178	63868	SPM	2	12	2	42	Defining basic terms in the introduction is supported, definitions should be consistent with the SREX, modification wrt to the AR4 should be indicated in footnotes. The definition of Climate Change should be consistent across WGs (and is not in the SODs). In addition, the introduction should state that all statements in the report are based on the fact that the climate signal is not differentiated always into anthropogenic and natural portion. (GERMANY)	A general footnote on the glossary is now provided to indicate revisions to terminology over time, following from advancements in science. In the glossary itself, further context is provided for many terms along these lines. The definition of climate change is now consistent across the working groups. A further footnote on attribution to climate change is provided in section A to help clarify, beyond the definition, the distinction between anthropogenic climate change and climate change.
179	65878	SPM	2	12	2	42	In box SPM.1, "Term Critical for Understanding the Summary", it would be useful some mention to the differences between the concepts between AR4 and AR5. (SPAIN)	A general footnote on the glossary is now provided to indicate revisions to terminology over time, following from advancements in science. In the glossary itself, further context is provided for many terms to indicate revision over time and since past assessment reports.
180	70954	SPM	2	12	2	42	Given the increased emphasis on social sciences in this report, it would be useful to include "Adaptive capacity" as one of the terms critical to understanding the SPM. The term is used frequently, including in the caption of the "Reasons for Concern" figure. (CANADA)	To keep this box as short as possible, the term adaptive capacity has not been added. However, enhanced clarity of terminology throughout the summary for policymakers has been ensured.
181	76144	SPM	2	12	2	42	Include definitions for the following terms: adaptive capacity, resilience, green infrastructure (UNITED STATES OF AMERICA)	To keep the box of terms as short as possible, these terms have not been added, although further definitions are provided in the glossary for the report and resilience is included in the box of terms within the technical summary.
182	62077	SPM	2	12	2	44	The definition of "mitigation" has been omitted in this definition box. It might also be worth to distinguish between "climate mitigation" and "risk mitigation", which do not necessarily mean the same thing in the short-term. (Joann de Zegher, Stanford University)	Mitigation is referred to throughout the summary for policymakers and is included prominently in figure SPM.8 and in the 2nd table. The term is not defined within this box, however, given that it is not as central to the scope of the report. Mitigation is not used to describe risk reduction to ensure clarity.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
183	62078	SPM	2	12	2	44	Because the notion of "low-regret" strategies and "iterative risk management" are such a fundamental part of the Summary, it might be worth to explain these terms upfront in the definition box too. This will anchor the ideas of "low-regret" strategies and "iterative risk management" in the mind of the reader and embed them as major components of the framework. (Joann de Zegher, Stanford University)	These concepts are highlighted within the summary for policymakers, but given length limitations, only the more fundamental terminology is included within this box.
184	66053	SPM	2	12	2	44	Term of adaptive capacity should be included in Box SPM.1. (FINLAND)	Although this term has not been added to the box given length limitations, it is defined in the glossary for the report, and clarity in context has been improved.
185	66054	SPM	2	12	2	44	Term of maladaptation should be included in Box SPM.1. (FINLAND)	Although this term has not been added to the box given length limitations, it is defined in the glossary for the report, and clarity in context has been improved.
186	66055	SPM	2	12	2	44	Term of key risk should be included in Box SPM.1. (FINLAND)	Although this term has not been added to the box given length limitations, its introduction within the summary for policymakers in section B has been substantially clarified.
187	66056	SPM	2	12	2	44	In order to avoid confusion the report should use only either the term emergent risk or emerging risk, and include the chosen term in Box SPM.1. We propose this in order to clarify the terminology and make text more reader-friendly. (FINLAND)	The treatment of these concepts has been clarified within chapter 19, and inclusion within the summary for policymakers has been reduced given the shortening of the document that has occurred. Specifically, the use of the term "emerging" has been expunged from Chapter 19, except in the context of health and disease. The term "Emergent risks" has remained.
188	66057	SPM	2	12	2	44	A short explanation of SRES, CMIP model simulations and SRES and RCP projections should be included in Box SPM.1. as they are referred to in the SPM. We do recognize that this will make the list very long. We wonder if a reference to the WG II glossary would help. (FINLAND)	Brief introduction is provided within section A-3. The broader framing of near-term and longer-term time frames in the coming century, along with assessment of risks focusing on 2 and 4°C global mean temperature increase from preindustrial levels, aims to provide a clearer way to understand projections of impacts and assessment of risks.
189	70234	SPM	2	12	3	9	Very helpful that these two terminology definition Boxes are placed here at the beginning. (SWEDEN)	The boxes have been maintained, but for clarity they are referred to at the start of the SPM but provided in full at the end of the document.
190	79786	SPM	2	14	0	0	To clearly distinguish the definition used in this report from the definition used by UNFCCC, we propose the following change "Climate change: Here defined as a change..." (NORWAY)	The definition now provided for climate change is the definition agreed across the 3 working groups, and thus it has been maintained as is for clarity.
191	77527	SPM	2	14	2	14	Use the word "detected" instead of "identified" (in WG I the word used is detection - associated to attribution) and on page 3 line 15, the word detection is used (SWITZERLAND)	The definition now provided for climate change is the definition agreed across the 3 working groups, and thus it has been maintained as is for clarity.
192	66269	SPM	2	14	2	16	This implies a change from one state to another, which then persists. This description isn't so effective for a continually changing state. Persistence here would relate to a persistently changing state. This could be amended to read: "Climate change: a continuous or step-like change in the state of the climate that can be ...." or, omit the term "state" to read: "Climate change: a change in climate that can be ...." (Timothy Carter, Finnish Environment Institute)	The definition now provided for climate change is the definition agreed across the 3 working groups, and thus it has been maintained as presented for clarity.
193	85168	SPM	2	14	2	18	You have omitted the behaviour of air and ocean circulation which are essentially chaotic and render your entire enterprise incapable of future prediction beyond a week or so (Vincent Gray, Climate Consultant)	Air and ocean circulation are included in the assessment of climate change that occurs in the working group I contribution to the 5th assessment report.
194	57623	SPM	2	14	2	22	Content of "Climate change", it is better to use the content of "climate change" of WG1 AR5 annex III. (ZONG-CI ZHAO, National Climate Center)	The definition of climate change is now harmonized across the 3 working groups.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
195	61722	SPM	2	14	2	22	This definition is not helpful for the interpretation of follow up statements such as "Climate change will lead to higher prices etc....". The definition must make clear whether effects of e.g. CO2 fertilization are part of the climate change definition. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Direct CO2 effects are indicated more directly now where they are particularly relevant in findings within the summary for policymakers.
196	61723	SPM	2	14	2	22	Please add a sentence to clearly state that the first definition of "climate change" is used here. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The definition provided for climate change is the definition agreed across the 3 working groups, and thus it has been maintained as presented for clarity. A footnote within section A clarifies consideration of climate change versus anthropogenic climate change is especially relevant to understanding assessment of observed impacts.
197	65641	SPM	2	14	2	22	Perhaps say at end what definition has been adopted in this and past IPCCs. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The primary definition is that presented 1st after the bolded term. A footnote within section A clarifies consideration of climate change versus anthropogenic climate change is especially relevant for understanding the assessment of observed impacts.
198	68306	SPM	2	14	2	22	Consider adding a definition for 'climate' in distinction with the term 'weather' (NETHERLANDS)	To keep this box as short as possible, only the most central terms have been included.
199	68307	SPM	2	14	2	22	There is some circularity in this definition. We propose to move the method of identification to a later sentence. Also we propose to add that the UNFCCC definition does not include human induced albedo changes either. We suggested to rephrase as follows: "Climate change: all changes in the mean and/or the variability of climate properties that persist over at least three decades. Climate change can be identified by statistic analysis, but cannot be derived from individual weather events. Climate change may be due to internal processes or external forcings such as modulation of the solar cycles, volcanic eruptions, and changes in the composition of the atmosphere or in the reflective properties of the surface. In contrast, Article 1 of the United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. The UNFCCC thus restricts climate change to human induced changes to the atmospheric composition, while in the definition herein climate change is defined independent of cause and also includes albedo changes." (NETHERLANDS)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been revised here.
200	79132	SPM	2	14	2	22	Not sure what they are trying to say here - both definitions seem to include both natural climate variation and man-made causes of climate change. However, this paragraph seems to throw doubt at man-made causes & the IPCC definition, which is surely not helpful & a potential hostage to fortune? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been revised here.
201	79133	SPM	2	14	2	22	Has this definition of climate change been agreed across WG's? If so, could it be included in each SPM or a standard glossary? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. It occurs in the glossary for each working group.
202	58869	SPM	2	15	0	0	it is not necessary that the changed state persists - the trend can also continue (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been revised here.
203	77278	SPM	2	15	2	17	First we are told that climate change "persists for an extended period, typically decades or longer", then given as an example "volcanic eruptions", which don't (in the observed record: mega-eruptions in the distant past are thought to have) (William Ingram, Met Office)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been revised here.
204	62656	SPM	2	17	2	17	Comment: Define "anthropogenic" here, unless it has already been done in a glossary of terms as suggested in the general comments above. (Anirudh Singh, University of the South Pacific)	The definition of climate change implies such a definition in the last sentence.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
205	63869	SPM	2	18	2	18	It should be even clearer to the reader that the IPCC's definition is NOT completely consistent with the UNFCCC's one. (GERMANY)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been separately revised here. To ensure clarity in section A, a footnote is provided to indicate and emphasize the distinction between attribution to climate change versus anthropogenic climate change.
206	65005	SPM	2	18	2	22	Once it is mentioned a different definition of "climate change" (UNFCCC article 1), I suggest to clarify why the IPCC definition is different of the one mentioned and what are the advantages of the different definition here adopted. (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been separately revised here.
207	85169	SPM	2	18	2	22	The key word is "attributable". Nowhere is there a provision for actual evidence, and, unfortunately, there is none, so all we are left with is "natural causes". (Vincent Gray, Climate Consultant)	Assessment of the evidence underlying attribution as relevant to the working group II is presented in section A-1 for observed impacts of climate change.
208	77357	SPM	2	21	2	22	There must be a clarification that the UNFCCC not only makes a distinction between climate change attributable to human activities but that it has also recognizes that its acceleration and deepening it is attributable to human activity itself. (Maria Jose Galarza, Ministerio del Ambiente del Ecuador)	The definition now provided for climate change is the definition used in working group 1 and shared across the 3 working groups. Thus, it has not been separately revised here.
209	85170	SPM	2	24	2	25	You immediately flaunt you prejudice. You are simply not interested in beneficial effects, only adverse ones (Vincent Gray, Climate Consultant)	Throughout the SPM, assessment of the potential benefits of climate change is provided.
210	58311	SPM	2	24	2	27	For the adaptation and key risk management due to impact of climate change, the exposure should have a linkage with vulnerability. In reverse, vulnerability also has a relation with climate-exposure and climate-resilience. Thus, it is suggested to address this point through modifying definition of vulnerability in this section. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	In contrast to previous assessment reports, exposure is further separated from vulnerability. The definition of vulnerability now helps clarify this point, along with the general footnote provided on the box.
211	80596	SPM	2	24	2	27	For the adaptation and key risk management due to impact of climate change, the exposure should have a linkage with vulnerability. In reverse, vulnerability also has a relation with climate-exposure and climate-resilience. Thus, it is suggested to address this point through modifying definition of vulnerability in this section. (Jiahua PAN, Chinese Academy of Social Sciences)	In contrast to previous assessment reports, exposure is further separated from vulnerability. The definition of vulnerability now helps clarify this point, along with the general footnote provided on the box.
212	61724	SPM	2	24	2	36	Why have these definitions been changed since AR4? This requires some clarification/justification. Some of the new definitions seem to be incomplete or too general (e.g. vulnerability, impacts). The AR4 definitions are much clearer and we recommend these are used. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Extended discussion of these concepts, as well as their evolution over time reflecting progress in science, is provided in the underlying chapters, and some further context is provided in the glossary itself. Additionally, enhanced clarity is achieved through revisions to the definition of vulnerability, to draw further parallel with past definitions while simultaneously emphasizing change over time.
213	66270	SPM	2	25	2	25	Does exposure necessarily have negative connotations? One could similarly be exposed (or not) to beneficial conditions. Furthermore, shouldn't the term "exposure" be qualified (i.e. in relation to those conditions)? Hence, exposure to climate-related risks or opportunities, in contrast to exposure to some other circumstance (e.g. volcanic eruption, job loss or tax break). (Timothy Carter, Finnish Environment Institute)	Although potential benefits of climate change are assessed throughout the report and summarized accordingly in the SPM, the definitions of exposure and vulnerability retain a focus on potential adverse effects, which is consistent with usage throughout the volume.
214	70323	SPM	2	25	2	25	Why only "adversiliiy"? If someone is exposed to climate change, this might also have positive effects (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Potential benefits of climate change are assessed throughout the report and summarized accordingly in the SPM. However, the definitions of exposure and vulnerability retain a focus on potential adverse effects, which is consistent with usage throughout the report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
215	63870	SPM	2	27	0	0	Please add to the definition of vulnerability that exposure is not included, in contrast to AR4. (GERMANY)	A general footnote is provided for the box to indicate revisions over time following from progress in science. Additionally, the definition of vulnerability has been expanded to further clarify the concepts it encompasses.
216	70955	SPM	2	27	0	0	Suggest expanding the definition of vulnerability to clearly state that this definition differs from that used in the AR4 and TAR, in that exposure is not a factor in determining vulnerability. This additional information is helpful in the same way its helpful to note the differences between the IPCC and the UNFCCC in defining "climate change" (CANADA)	A general footnote is provided for the box to indicate revisions over time following from progress in science. Additionally, the definition of vulnerability has been expanded to further clarify the concepts it encompasses.
217	66271	SPM	2	27	2	27	This definition of vulnerability, if it was only the "propensity" to be adversely affected, could be interpreted as the magnitude of potential impact under an assumed condition of exposure (as defined earlier). However, if it is also defined as a "predisposition" to be adversely affected, then this could overlap with exposure, as one possible dimension of that "predisposition" could be "place". The term vulnerability, as it is used throughout this report, is problematic due to this and other ambiguities. (Timothy Carter, Finnish Environment Institute)	The definition of vulnerability has been expanded to further clarify the concepts it encompasses.
218	70359	SPM	2	27	2	27	The IPCC AR4 definition of "vulnerability" seemed more descriptive and relevant than the proposed AR5 definition. Much research has examined vulnerability using the AR4 definition and the proposed AR5 change would not seem to improve the facilitation of vulnerability research and applications. (Patrick Gonzalez, National Park Service)	Reflecting progress in science and usage across report, the concept of the exposure has been further separated from vulnerability as compared to the 4th assessment report. To further clarify concepts encompassed by the vulnerability, the definition is now slightly expanded.
219	76145	SPM	2	27	2	27	The definiton of vulnerability included here is not consistent with IPCC standards. IPCC defines vulnerability as "The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. It is a function of the sensitivity of a particular system to climae changes, its exposure to those changes, and its capacity to adapt to those changes." IPCC 2007a. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Core Writing team, R.K. Pachauri, and A. Reisinger (eds.) Intergovernmental Panel on Climate Change, Geneva, Switzerland. (UNITED STATES OF AMERICA)	As indicated by a general footnote on the box, some terms have been revised since the last assessment report, including the definition of vulnerability. In the current draft, the definition of vulnerability is expanded slightly to further clarify the concepts encompassed.
220	85171	SPM	2	27	2	27	You immediately flaunt you prejudice. You are simply not interested in beneficial effects, only adverse ones (Vincent Gray, Climate Consultant)	The assessment and summary within the SPM considers potential benefits of climate change. These definitions for vulnerability and exposure place focus on potential adverse effects, as they inform understanding of the adverse effects of climate change.
221	65642	SPM	2	29	2	29	Impacts. In some cases natural systems respond to climate change – for example, the geographic ranges of species expand polewards. I am not sure this is really an impact. It is just how individuals of a particular species respond to climate change. Perhaps care is needed to separate out impacts from responses throughout the report? (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Terminological clarity for organismal and ecological impacts and adaptation is ensured in findings presented within the SPM, although specific examples for species range shifts are not included within the definition.
222	63871	SPM	2	29	2	30	Please change into: "In this report, the term "impacts" is used to refer to the effects on natural and human systems of climate change, of physical events, of disasters and effects of non-climatic drivers." Also non-climatic drivers such as socio-economic developments will have impacts which influence the impacts of the other events and trends. In addition, please explain, how impact is linked to exposure and vulnerability. (GERMANY)	The figure added to the introduction of the SPM is intended to clarify the ways in which exposure, vulnerability, risk, and impacts interrelate. Additionally, it clarifies the role of development and socioeconomic pathways in influencing exposure, vulnerability, risk, and impacts, as well as the interconnections involved. The sentence referred to has also been clarified to best reflect usage in the report.
223	65006	SPM	2	29	2	30	I considered this definition of the term "Impacts" confused because it is separately from "physical events" and "disasters" as the 3 terms were independent and always not related among each other. (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	The sentence has been revised to better reflect usage in the report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
224	70589	SPM	2	29	2	30	The 2nd sentence reads oddly. Suggest amend to "In this report, the term impacts refers to the effects of physical events, disasters and climate change on natural and human systems. (NEW ZEALAND)	The sentence has been revised to better reflect usage in the report.
225	85176	SPM	2	29	2	30	You only "refer" to Impacts So you do not make "observatons" or "measurements"? (Vincent Gray, Climate Consultant)	Observed impacts are presented in section A-1 of the SPM.
226	66272	SPM	2	30	2	30	Only physical events? What about economic shocks? (Timothy Carter, Finnish Environment Institute)	The word "primarily" has been inserted to better reflect usage in the report.
227	63872	SPM	2	32	2	30	Please modify the second sentence: Climate related impacts in future cannot be assessed by probability of occurrence multiplied with consequences (=impacts), because both cannot be projected, also climatic effects are not only related to hazardous events but also to trends or not hazardous events (partly with hazardous effects). We suggest to use the word "weigh" instead of "multiply". In addition, instead of "consequences" use the word "negative impact" that is defined some lines above. (GERMANY)	The word "trend" has been inserted. Probability and consequences, related through multiplication, have been retained reflecting usage in assessed literature and in the report.
228	59757	SPM	2	32	2	32	A description of how this definition aligns with ISO 31000:2009 would be useful here (AUSTRALIA)	Further background on risk terminology is provided in the underlying chapters, but not in the summary for policymakers. Please see especially chapters 2 and 19.
229	70324	SPM	2	32	2	32	Why only "human value"? Does this mean that there is no climate change risk on natural systems (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Natural systems are not excluded, in that many natural systems are valued by humans.
230	70956	SPM	2	32	2	34	Suggest it be made very clear if the term 'risk' is used in this report in a way that encompasses both adverse and beneficial consequences or only adverse consequences. If the former, then suggest that to the end of the last sentence, text could be added to say "both negative and positive" (i.e. "This report assesses climate-related risks, both negative and positive). If the latter, the suggest the first sentence be revised to say "The potential for adverse consequences....". (CANADA)	The 1st sentence of the definition intentionally does not specify focus on only adverse or beneficial outcomes. The 2nd sentence indicates that usage "often" considers the consequences of hazardous events or trends.
231	85172	SPM	2	32	2	34	Climate outcomes are always uncertain, Forecasting only works for a week or so (Vincent Gray, Climate Consultant)	The existence of uncertainties, which in some cases are persistent uncertainties, is a reason why focus on risks can be a particularly effective framing for understanding the potential impacts of climate change.
232	66273	SPM	2	34	2	34	Climate-related or climate change related; should we distinguish these? (Timothy Carter, Finnish Environment Institute)	The usage of "climate-related" is intentionally broader than specifying "climate-change-related."
233	76146	SPM	2	36	2	36	INSERT text: In human systems, the "risk management" process (UNITED STATES OF AMERICA)	The definition has been revised for clarity, both by drawing further parallel to what is common across human and natural systems and by further emphasizing the differences.
234	61725	SPM	2	36	2	38	This should point out that adaptation may not be possible if changes are severe and that this would force a transformation (e.g. abandonment of a city). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Findings on limits to adaptation are presented in section C of the SPM.
235	65879	SPM	2	36	2	38	There is a distinction among "human" and "natural" systems, but the fact is that there are lots of natural systems in origin that have been modelled by human activity by centuries and have resulted in systems that have both characteristic in an indivisible way (e.g. agro-systems) (SPAIN)	Throughout the SPM, the interlinked nature of human and natural systems is emphasized where relevant to findings.
236	70276	SPM	2	36	2	38	need for a clarification that in spite of a division of natural and human systems – they are interlinked 2) adaptation might not only be a question of adjustment ("status quo") but might mean that we have to accept an unavoidable change and compensate, either elsewhere (like promoting similar ecosystems at other locations or moving human activities) or by preparing affected sectors or individuals to find other opportunities. (SWEDEN)	Throughout the SPM, the interlinked nature of human and natural systems is emphasized where relevant to findings. Findings on adaptation and on limits to adaptation are provided in sections B and C of the SPM.
237	77358	SPM	2	36	2	38	Adaptation seeks not only to moderate harm or exploit beneficial opportunities but also manage the adverse effects that climate change produces. (Maria Jose Galarza, Ministerio del Ambiente del Ecuador)	Management of adverse effects is not excluded in the wording of the current definition.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
238	63873	SPM	2	36	2	42	In earlier IPCC reports adaptation has been described as a process of change or transformation. Since AR 4 the meaning (intent) of adaptation and transformation is differentiated and should be made more explicit in this report. The related examples for "transformation"/ "spheres of change" in the Technical Summary, P 94 Table TS.4 (or in the SMP P 24) for example, could also be subsumed under the heading of "adaptation". The relationship between Transformation and Adaptation should be clarified – see comment on SPM P 16 L 50 – P 17 L 3. In addition, please include definitions of the terms incremental / transformational adaptation from TS P 3 L 48 – P 4 L 7, see also Ch 20.5.1 L 45-54 stating "The distinction between incremental ...or vulnerability is high". (This addition would also help to understand the meaning of "transformative response", e.g. on SPM, P 5, L 53). Furthermore, WGIII mentions the concept of "transformation pathways" (WGIII Glossary) without reference to adaption, this should be harmonized. (GERMANY)	The juxtaposition of the terms adaptation and transformation within the box of terms is intended to indicate that the concepts are not equivalent. Although incremental and transformational adaptation are defined in the glossary and in the technical summary, the definitions are not repeated here to keep the box as concise as possible, and clarity of usage is ensured in context.
239	65369	SPM	2	36	2	42	It is supported to include definitions of the terms adaptation and transformation in SPM Box SPM.1. However, the short versions of the definition give the misleading impression that transformation is a specific kind of adaptation as is incremental adaptation. For the sake of clarity it is therefore suggested to include the full definition of adaptation as included in the SOD-Glossary for WGII report. (Klaus Radunsky, Umweltbundesamt)	The juxtaposition of the concepts is intended to indicate that they are not identical. The evolution in usage of terms is reflected in the literature, where this differentiation has been articulated in recent years. Clarity of distinction between incremental and transformational adaptation is ensured where the terms are used throughout the SPM. The sub entries of the annotation definition are not provided in the box in order to keep it as concise as possible.
240	79026	SPM	2	36	2	42	Please include information on how to distinguish adaptation from transformation or an explanation how they are interlinked or what constitutes a "fundamental attribute". (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	Findings presented on transformation and adaptation within section C of the SPM are intended to clarify these points.
241	66027	SPM	2	37	2	38	Why adaptation for natural systems only refers to actual climate and not to expected climate? I am not sure if it is a mistake (Maria-Carmen Llasat, University of Barcelona)	The definition has been revised such that commonalities across human and natural systems are further emphasized.
242	56320	SPM	2	38	0	0	I suggest the following "human intervention may facilitate adjustment to actual or expected climate change" instead of "human intervention may facilitate adjustment to expected climate" (Paul WOODS, World Vision)	This phrase within the definition is intended to emphasize that natural systems would not otherwise be adjusting to expected or projected climate and impacts.
243	66274	SPM	2	38	2	38	The mention of human intervention is a little ambiguous here. Presumably, it refers to human intervention to facilitate adjustment in natural systems in the event that natural adjustment is impeded, but this isn't explicit. (Timothy Carter, Finnish Environment Institute)	This phrase within the definition is intended to emphasize the natural systems would not otherwise be adjusting to expected or projected climate and impacts.
244	59758	SPM	2	39	2	39	It would be useful to include definitions of 'resilience' and 'climate hazard' in this part of the document (AUSTRALIA)	To keep the box concise, resilience is defined in the report glossary and in the technical summary terminology box, but not in the SPM box. Climate-related hazards are profiled at the start of the SPM in the figure within the introduction, but not defined within the box in order to keep focus on the most central terms within the box.
245	66275	SPM	2	40	2	41	"Attributes of a system" is a little vague here. Presumably this refers both to the basic structure and function of systems. (Timothy Carter, Finnish Environment Institute)	The word "attributes" is intentionally broad, an approach that can be more effective within a definition than providing a longer laundry list of related concepts, especially given the lists of nouns already provided within the definition.
246	70957	SPM	2	40	2	42	This definition is the same as that in the IPCC SREX except for the introduction of the phrase "often based on altered paradigms, goals, or values". Suggest this phrase be deleted. This added text does not seem an improvement, in particular because it's hard to see how this would apply to biological systems. (CANADA)	The inclusion of this phrase is intended to best reflect usage across the report, recognizing that forced transformations are another type of transformation not excluded by the definition.
247	76147	SPM	2	41	2	41	INSERT text: financial "or economic" structures (UNITED STATES OF AMERICA)	Since the list is not intended to be absolutely inclusive of all possibilities, the shorter phrase has been retained for clarity.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
248	79134	SPM	2	43	2	44	Why not provide a definition for "mitigation" as it is referred to in the text (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This box is intended to focus on terms most central to the working group II assessment. Prominent reference to mitigation is made throughout the text, with indication of assessment in working group III of mitigation provided within the 2nd table and Figure SPM.8+I257.
249	61726	SPM	2	46	3	9	In Box SPM.2, the main distinction between confidence and (un)certainly is that the latter is quantified. However, the fact that this quantification can be made on the basis of expert judgement blurs the distinction. Within subsequent chapters, some favour 'confidence' assessments, others '(un)certainly' estimates (e.g. in their Executive Summaries). This is confusing: should "very high confidence" be considered equivalent to ""very likely" or "virtually certain"? A single scale for both confidence/certainly would seem to be preferable - for all of IPCC AR5. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Please see the uncertainties guidance for the 5th assessment report for extended introduction of the different metrics. Assignment of likelihood terms follows the evaluation of levels of confidence (based on available evidence and agreement). Fundamental to the guidance for authors is the relationship and distinction between confidence and likelihood.
250	61727	SPM	2	46	3	9	In Box SPM.2, no descriptor is offered for statements that can be considered factual, i.e. beyond dispute. The closest is "very high confidence" or "virtually certain" (99-100% probability). Yet use of these terms implies that there is some possibility of an alternative, and that the statement could be incorrect; their repeated use gives the overall impression that the authors are not quite sure that the information can be relied on. Indeed, on a probabilistic basis, 1 in 100 statements that are "virtually certain" can be expected to be wrong. An additional descriptor e.g. "fact" or "no uncertainty" would seem to be needed - applicable for all of IPCC AR5. Alternatively, at least within Executive Summaries, statements could be considered as 'facts' if given in bold without any indication of confidence/(un)certainly. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Reference to factual statements is now made at the end of the box.
251	63874	SPM	2	46	3	9	Box SPM.2. The understanding of the concept of evidence, agreement and the correlating confidence scale is crucial throughout the SPM. In order to increase the comprehensibility, figure 1-4, Ch 1 P 36 could complement the text. Please clarify the difference between "degree of agreement" and "levels of confidence". This can easily be accomplished by adding one sentence from TS (P 4 L 26-27) that might be shortened to: "Confidence provides a synthesis of the evaluation of evidence and agreement". In SPM is not clear in general, why for some findings a level of confidence is given and for others not, thus insert: For a given evidence and agreement statement, different confidence levels could be assigned, but increasing levels of evidence and degrees of agreement are correlated with increasing confidence. Note: Confidence cannot necessarily be assigned for all combinations of evidence and agreement (taken from GuidanceNote Uncertainties AR5 2010, P 3, paragraph 9). (GERMANY)	A sentence has been added to emphasize that confidence synthesizes the evaluation of evidence and agreement.
252	62657	SPM	2	48	3	7	Box SPM2. Comment: Include a simple example of the use of Level of Confidence and Likelihood of occurrence. (Anirudh Singh, University of the South Pacific)	Examples are not provided in order to keep the box as concise as possible.
253	79135	SPM	2	48	3	9	Suggest that this standard text should be agreed across WG's and included in each SPM (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Further harmonization of description across the working groups has been achieved in the current draft.
254	70958	SPM	2	50	0	0	Suggest that this should say "the WGII contribution to the AR5" not the "WGII AR5". (CANADA)	This phrase has been deleted.
255	85173	SPM	2	51	2	53	"Confidence" depends on who you ask. It does not amount to evidence (Vincent Gray, Climate Consultant)	In the guidance provided to authors of the assessment, confidence is used to synthesize the evaluation of evidence and agreement.
256	85174	SPM	2	54	2	55	Statistical analysis requires representative samples and an adequate population of results. Model analysis is worthless unless the models have been validated and shown to be capable of accurate prediction. "Expert Opinion" is always worthless. (Vincent Gray, Climate Consultant)	This phrase is no longer retained in the SPM but is referred to elsewhere in the report where the uncertainty guidance is overviewed.
257	79136	SPM	3	0	0	0	Helpful to draw out more of what AR5 has observed first/as lead in to paras; rather than referencing back to AR4. Similarly on pg16, lines 20-24. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	It is not clear what this comment refers to. I270If the opening paragraph on observed impacts is being referenced, this text no longer contains reference to the 4th assessment report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
258	65880	SPM	3	0	3	0	Section A.i.- This section could point to a more specific text when findings and outcomes are referring to regions. There are quite sentences with wording such as "in some regions" (pag 3,lines 39-40), "in many rivers" (pag 3, line 40), "in many regions" (pag 3,line 46), "in many parts" (pag 3, line 48), in several regions (pag 4, line 12)... Is it not possible to detail where, which regions and parts are those? The SPM will get value with these added information. Moreover, it is suggested a figure with the map of the world and references with main impacts observed in main regions of the planet. This would provide a synthesis "geographically visible" (SPAIN)	In response to these points, a map of impacts attributed to climate change across the world has been added to this section.
259	65644	SPM	3	1	3	1	an author team's is an ugly adjectival noun. "a team of authors evaluation" is more formal but clearer. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The phrase has been removed.
260	70283	SPM	3	1	3	1	"... an author team's ..." should be changed to clearly indicate that it is an IPCC AR5 [WGII] author team. Otherwise it may be interpreted as the opinion of an (any) outside author team (e.g. the authors of a [review] paper that is cited) (SWEDEN)	The phrase has been removed.
261	59759	SPM	3	1	3	7	This section is not particularly clear. The section in the Technical Summary (Box TS.3) explaining the degree of uncertainty is much clearer. Suggest either using the same text as the Technical Summary, or at least re-writing and referencing the Technical Summary. (AUSTRALIA)	This text has been substantially clarified.
262	79137	SPM	3	1	3	7	This text about confidence levels is of fundamental importance. It may ready more clearly if separated into more than one paragraph, with lines/breaks to distinguish between terms for availability of evidence, levels of confidence and degree of agreement (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The text has been substantially clarified, with separate paragraphs provided as suggested.
263	85175	SPM	3	1	3	7	None of this includes actual evidence. All of it relies on the opinion of your selected "experts" (Vincent Gray, Climate Consultant)	Examples of types of evidence are given in the 1st paragraph of the box.
264	58312	SPM	3	2	3	2	The definition of robust is not clear here. Please give a clarification. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	These are qualitative descriptors that are introduced more substantively in the context of the full guidance for authors.
265	79138	SPM	3	2	3	2	there is no definition of degree of agreement. This would be useful to clarify or x-ref to elsewhere in doc where it is defined. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Cross-references now provided for the underlying chapter sections in which further information is provided, including the full set of relevant references.
266	80597	SPM	3	2	3	2	It is ambiguous about the concept of "robust" without any quantitative description. SUGGESTION: add quantitative description for "robust" (Jiahua PAN, Chinese Academy of Social Sciences)	This is a qualitative descriptor that is intentionally not defined quantitatively.
267	79139	SPM	3	3	3	3	The meaning of confidence in this context is not defined and the levels of confidence are not defined; accepting that this is perhaps subjective, if they are derived by expert judgement, it would be beneficial to state this. A description of what academics mean by "confidence" would be beneficial, as there could be misunderstanding between confidence of a finding and likelihood of it happening. Similarly, there could be mis-interpretation that a low confidence finding is plain wrong and can therefore be discounted from future consideration. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The revised wording attempts to present the basis of confidence assignments a bit more clearly, with reference added to the chapter sections in which full information can be found.
268	62407	SPM	3	3	3	7	For instance in India, agricultural research has focussed on the issues related to impacts, adaptation, mitigation and vulnerability. Some of the literature which we feel is important and should be considered in the AR5 report is included below. These papers provide the additional information/insights with respect to the tropical conditions which may be incorporated at appropriate places in these two chapters. (INDIA)	The relevance of this comment to the text is not clear.
269	59760	SPM	3	5	3	7	Overall clarity could be enhanced by providing the 'likelihood of terms' in a table listing them in consecutive numerical order (AUSTRALIA)	The likelihood terms are now presented fully in consecutive numerical order, but for conciseness, they are not presented separately in a table.
270	65007	SPM	3	6	2	7	The Additional terms "extremely likely"; "more likely than not"; "extremely likely" could be better explained to help readers to understand In what cases they will be used along the chapter: In "evidence", "agreement" or "confidence"? (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	The additional likelihood terms are now presented with the other likelihood terms for clarity. Reference is provided to the underlying chapter sections in which full information can be found.
271	63875	SPM	3	11	0	0	Please adjust the wording of heading A) to the heading A) in the TS. (GERMANY)	The headings in both summary products now match.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
272	77448	SPM	3	11	0	0	Under the title "Observed Impacts and Vulnerability" there is no clear reference to the fact that (people in) developing countries are likely to be more affected by climate change impacts than (people in) developed countries. Such reference is stated in several Chapters, see 15.1, 14.2, etc. (Sven Harmeling, Germanwatch)	Reflecting the findings across the report, the section presents core findings on observed impacts and vulnerability as relevant to both developed and developing countries.
273	62658	SPM	3	11	3	11	Insert the word "Section", i.e. Section A (Anirudh Singh, University of the South Pacific)	This formatting change has not been made given the approach taken in both the summary for policymakers and the technical summary.
274	76148	SPM	3	11	4	43	Suggest the addition of a section that talks about extreme weather and cites examples of extreme storms, drought, etc. Superstorm Sandy, which affected the eastern US coast, would be a good example to include. (UNITED STATES OF AMERICA)	A central finding in this section does focus on what impacts of extreme events reveal about vulnerability and exposure.
275	79140	SPM	3	11	4	43	It would be helpful to note in this section that changes in infectious disease vectors not just in human disease but animals and plants also (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Although further information on a variety of disease vectors is assessed throughout the report, a finding on this topic has not been elevated to the level of the summary for policy makers.
276	65611	SPM	3	11	4	44	Somewhere in section A we should give some numbers for the likely range of environmental, economic and human costs (lives lost) due to climate change for each RCP. Rising food prices in the tropics will cause starvation at least at national scale. (David Flint, Cass Business School)	This section focuses on observed, not projected, impacts, and thus information on projected impacts is not appropriate for this section.
277	80601	SPM	3	11	5	1	Part A.I does not include the conclusion of coastal areas. Since the coastal system is very important and it is a chapter of this assessment report. SUGGESTION: add a sentence or paragraph about the conclusion of "coastal areas". (Jiahua PAN, Chinese Academy of Social Sciences)	This information is reflected within this section in the map of observed impacts (newly added Figure SPM.2A).
278	61728	SPM	3	11	6	19	This section needs to include more, and quantified, information on impacts. Currently there is too much focus on adaptation and too little on the impacts of climate change. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	More quantified information on indicators of a changing climate is now provided in figure 2, a new figure.
279	63876	SPM	3	13	0	0	Please adjust the wording of heading A.i. to the heading A.i. in the TS. (GERMANY)	The headings now match.
280	78122	SPM	3	13	0	0	Please, give specific cases and quantitative numbers in the observed impacts and vulnerabilities whenever is possible , e.g. most oceans? many regions? Table SPM1 is all the cases? Can it be linked to each paragraph whenever possible? (Christiano de Campos, Petroleo Brasileiro SA)	More quantitative information on indicators of a changing climate is now provided in figure 2, a new figure.
281	78123	SPM	3	13	0	0	Some paragraphs/sentences present confidence and evidence indicator, some does just confidence or do not have anything, it could be harmonized (Christiano de Campos, Petroleo Brasileiro SA)	Both evidence/agreement and confidence are consistent metrics in the uncertainties guidance provided to authors. Confidence is used where possible.
282	66276	SPM	3	13	3	13	I'm not convinced that observed vulnerabilities should be grouped with observed impacts. Why not begin with observed vulnerabilities and then treat impacts. Another option, which might be even more effective, would be to incorporate some of the "vulnerability" material into Box SPM.3. Much of it is really background and context for the differential impacts and responses that have been happening up to now and could happen in the future. In contrast, the latter issue of observed impacts is a large discipline in its own right, includes discussion of detection and attribution and the main portion is devoted to biophysical impacts. Of course, "vulnerability" is an important factor muddying the detection of observed impacts in human systems, but that isn't sufficient reason, in my view, to merge the two issues here. I suggest framing vulnerability with those statements, and then discussing observed impacts with the results from chapter 18 and regional chapters. (Timothy Carter, Finnish Environment Institute)	Observed impacts are now presented separately from findings on vulnerability and exposure.
283	79787	SPM	3	13	4	43	Could you include one paragraph about the impacts and vulnerabilities of coastal areas? For example page 4 line 3 (before the paragraph about marine species). Coastal systems are crucial ecosystems for biodiversity, food production and ecosystem services. (NORWAY)	Detected coastal impacts are now summarized within this section in figure 2, a new figure.
284	63296	SPM	3	14	3	22	The paragraph can be shortened and less pedantic in tone. (IRELAND)	The paragraph has been shortened and made more understandable.
285	66059	SPM	3	14	3	22	The magnitude of the global warming should be mentioned in this paragraph. (FINLAND)	Findings on warming to date are presented in the working group 1 contribution, with information relevant to understanding the working group 2 contribution presented in Figure SPM.4.
286	62409	SPM	3	15	3	15	Insert "various" between "on" and "physical" (INDIA)	Different terminology is now used with appropriate qualification given.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
287	59761	SPM	3	15	3	17	This sentence states that impacts have been detected in 'most oceans'. Argue that warming has been detected in ALL oceans. This point is also inconsistent with the section in Chapter 18 (18.3.4.2), which states that 'While climate change is evident across the ocean...'. If evidence suggests that there is an ocean which has not experienced change, this should be stated in the SPM, with a reason why. (AUSTRALIA)	Clearer wording is now used, with summary of detected impacts provided in figure 2, a new figure.
288	61729	SPM	3	15	3	17	The statement "Impacts of recent observed climate change..." is an example of a 'high confidence' statement that can be considered factual - on the basis of the IPCC definition of climate change (including natural change) but not necessarily on the UNFCCC one (i.e. the change is human-driven) (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The statement is now presented as a fact.
289	85177	SPM	3	15	3	17	This is incomprehensible. All you have done is to "detect" "effects" with a high level of "confidence". This is a "conclusion" based on "observations" and "analysis" What does that all mean? (Vincent Gray, Climate Consultant)	The referenced chapter sections provide the full assessment supporting the conclusions presented in the summary for policy makers.
290	61730	SPM	3	15	3	22	Why has the evidence on ocean acidification been removed from this paragraph. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The paragraph has now been further shortened to emphasize the most salient conclusions. Ocean acidification is addressed in section B-2 and Figures SPM.2A and 6.
291	62408	SPM	3	15	3	22	Any result on Asian Monsoon? If so a paragraph to be added on key observed Monsoon trends. (INDIA)	Findings on monsoons are presented in the working group 1 contribution.
292	63297	SPM	3	15	3	22	Edit to make the key message more prominent. Suggest moving 2nd sentence to first place. The key message is that evidence of the impacts of climate change has increased since AR4, (IRELAND)	The core findings are now more clearly stated.
293	68308	SPM	3	15	3	22	It might be worth emphasising within the text the difficulties in disentangling climate change impacts on freshwater resources (except cryosphere). This is different to saying that human factors often dominate over direct impacts of climate change impacts. It could perhaps read 'For many natural systems on land, except freshwater resources,....new or stronger evidence exists for substantial and wide-ranging impacts attributed to climate change.' (NETHERLANDS)	The most salient findings on freshwater resources are now presented on page 3 and also summarized within figure 2, a new figure.
294	78265	SPM	3	15	3	22	Is it worth including ocean acidification here? Specifically, in line 18, there is no mention of ocean acidification as a major source of global change. While ocean acidification is not due to a shift in climate, not unlike climate change, its primary driver is human derived CO2 and approximately 70% of the Earth's surface area is affected by these changes in chemistry. (Shane Easter, Carnegie Institution of Washington )	Findings on ocean acidification are featured in section B.
295	59762	SPM	3	15	4	44	There is a mix of vague references to climate change impacts (eg. hydrological systems have changed in many regions) along with a handful of very specific examples (eg extinction of Central American amphibians, boreal forest tree mortality in Central and South America). The SPM could be improved with a more consistent approach to describing impacts. (AUSTRALIA)	Improved balance among text-based findings, an overview of specific observed impacts, and more quantitative summary of indicators of a changing climate has now been achieved.
296	78124	SPM	3	16	0	0	Which oceans have not been detected impacts? In table SPM1 we are using regions, maybe this sentence could be rephrased according to the table (Christiano de Campos, Petroleo Brasileiro SA)	Improved wording is now used, and a map-based summary of observed impacts is included in figure 2, a new figure.
297	68309	SPM	3	16	3	16	Please consider changing the word '...since' to 'from' as The IPCC Fourth Assessment Report (AR4) is not a live event that can be observed but an inanimate object (document) that is written (NETHERLANDS)	The phrase is no longer used.
298	70590	SPM	3	16	3	16	Slightly confusing. Do you mean that the conclusion was already made under AR4 and that observations since then have strengthened that conclusion? (NEW ZEALAND)	The phrase is no longer used.
299	85178	SPM	3	17	3	18	You seem programmed to "attribute" everything to "warming". What about the persistent cold winters in the Northern Hemisphere? Don't tell me that can be "attributed" to "warming": (Vincent Gray, Climate Consultant)	Full assessment of observed impacts is provided in Chapter 18 and other sections throughout the report.
300	63877	SPM	3	18	3	19	Lower confidence is constituted here (compared to AR4), but what level of confidence does it mean? (GERMANY)	Improved wording is now used to avoid this ambiguity.
301	68310	SPM	3	18	3	19	The SPM states that there is 'lower confidence in attribution to shifts in rainfall patterns', just like in Chapter 18, page 3, on line 9 and 10. However, a clear and transparent argumentation of this statement in the chapter 18 material cannot be found. (NETHERLANDS)	This statement is no longer included in the now shortened paragraph.
302	63878	SPM	3	20	3	20	Stronger evidence is constituted here (compared to AR4), but what level of evidence does it mean? (GERMANY)	Improved wording is now used to avoid this ambiguity.
303	61731	SPM	3	20	3	22	Please add the following text taken from the Technical Summary to provide the full message: "Despite this, numerous impacts of climate change have been detected." (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text along these lines has now been included.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
304	77447	SPM	3	20	3	22	This statement can politically be used to undermine efforts to tackle climate change. To avoid this there should be some kind relativisation. (Sven Harmeling, Germanwatch)	Clearer wording of the statement is now used.
305	60328	SPM	3	22	3	22	Please provide information how these examples have been chosen (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	Instead of this table, a comprehensive visual summary of observed impacts assessed in Chapter 18 is now provided (Figure SPM.2A), with the methodology of that chapter's assessment described at length in the underlying chapter.
306	62669	SPM	3	22	3	22	As for [18.3-18.6], there are some comments as that on chapter 18. Please check my comments on chapter 18. (RONGSHUO CAI, Third Institute of Oceanography)	These comments have been evaluated and addressed by chapter 18.
307	70933	SPM	3	22	3	22	"regional examples": Are these just examples? (Fuglestedt Jan, CICERO)	A comprehensive summary of observed impacts assessed in Chapter 18 is now provided instead within the summary for policy makers (Figure SPM.2A).
308	80300	SPM	3	24	0	0	Table SPM.1: Column 2, polar regions' - Can 'glacier ice volume' be made more specific? Are you talking about ice sheets here, glaciers (as in the way they are defined in WGI), or both? This distinction is important to help reconcile the statements and confidence levels you give here, with the reported trends and attribution statements given in WGI. See further comments on this below. (Gian-Kasper Plattner, IPCC WGI TSU)	This table is no longer included in the summary for policymakers.
309	80301	SPM	3	24	0	0	Table SPM.1: Column 2, polar regions' - Note that the SOD of WGI Chapter 10 assigned 'high confidence - very likely' to an anthropogenic cause for most of the Arctic sea ice retreat in recent decades. It is difficult to reconcile this with only 'medium confidence' given here for the role of warming. This appears to give a confusing picture from which a clear message will be difficult to communicate. (Gian-Kasper Plattner, IPCC WGI TSU)	This table is no longer included within the summary for policy makers.
310	79141	SPM	3	24	3	26	Table SPM. 1, in the 'Europe' section on 'Coastal and Marine' the information on cod and eelpout seems very specific, given the high-level nature of the document. The shift in cod distribution (given a high confidence score) is actually quite controversial, and there is much argument about whether the shift is due to climate or depletion by the fishery. There is huge literature base on European fish distribution shifts, so the inclusion of these specific studies seems very narrow. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included within the summary for policymakers.
311	70235	SPM	3	25	3	25	Add "Examples" or other suitable qualificator to the beginning of the Table SPM.1 caption, as the list probably is not exclusive. (SWEDEN)	This table is no longer included in the summary for policymakers.
312	64331	SPM	3	25	3	26	Revise Table caption to state "Examples of observed impacts ...." to emphasize that this is not a comprehensive list. Caption should also explain blank cell - is it that no impacts have been observed with medium confidence or higher, or that those systems were not assessed in the related regional chapters? (Don Lemmen, Canada National Study)	This table is no longer included in the summary for policymakers.
313	63879	SPM	3	27	3	27	Please insert subtitle as in TS (P 5 L 41) "Factors determining vulnerability and exposure" in order to provide a comprehensible structure. Without subtitle paragraphs on this page are lined after another without logical frame. (GERMANY)	A separate subheading is now used within the section.
314	63881	SPM	3	28	0	0	Please explain the word 'biophysical' by mentioning few examples, and in the Glossary. (GERMANY)	Clarified wording is now used.
315	68312	SPM	3	28	3	28	Biophysical factors appear to be non-climatic drivers and the interaction must be with OTHER non-climatic factors. So the sentence might be better read as "Climate and biophysical drivers interact with other non-climate..." as it seems to bring into light the importance of non-climate forces to vulnerability. In addition, please take the suggestion to replace the word drivers by "forces" as the latter carries the message better. (NETHERLANDS)	Clarified wording is now used.
316	70591	SPM	3	28	3	29	The sentence in bold is unclear. Suggest: "Differential risks and impacts are shaped by both climatic/biophysical and non-climatic drivers of vulnerability and exposure" (NEW ZEALAND)	Clarified wording is now used.
317	70959	SPM	3	28	3	29	Suggest rephrasing the bold statement to increase clarity. Perhaps the sentence could be reversed to begin as "Risks and impacts are shaped by..." (CANADA)	Clarified wording is now used.
318	79142	SPM	3	28	3	29	The bold text here is quite hard to understand and not very accessible to non-scientists. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Clarified wording is now used.
319	62416	SPM	3	28	3	31	Box SPM-3: Position of SPM 3 Box needs to be correlated (INDIA)	The placement of the box follows conventions of formatting used throughout the summary for policy makers.

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320	66277	SPM	3	28	3	31	I wonder what insights this statement offers in advance of what four previous assessments and common sense could offer. Furthermore, what are "non-climatic drivers of exposure"? The definition of exposure was effectively place in relation to hazard. Figure 1, Box SPM3 treats exposure as independent of vulnerability (i.e. for the same exposure, the privileged are more resilient/less vulnerable than the marginalized). (Timothy Carter, Finnish Environment Institute)	A shortened, clarified finding is now presented, with focus on the most up-to-date assessment.
321	66278	SPM	3	28	3	31	In fact, this statement doesn't sit comfortably amidst a discussion of observed impacts. It is more general and would either be better placed up front (though it isn't the strongest opening imaginable for an SPM!) or somewhere else (my preference). (Timothy Carter, Finnish Environment Institute)	A separate subsection for vulnerability and exposure is now presented in section A-1.
322	68311	SPM	3	28	3	31	This statement is true, but very abstract and difficult to understand for policy makers. We suggest to rephrase to: "Human and natural systems are not only exposed to by climate change, but to a range of factors (multi-stress), most of which are local or regional. These factors may exert a negative influence on the vulnerability for climate change. This implies that in efficiently reducing the impact or improving survival of systems, all stress factors need to be considered". (NETHERLANDS)	Clarified wording is now used.
323	70934	SPM	3	28	3	31	This sounds a bit obvious as written now. Perhaps add why this is important. (Fuglestvedt Jan, CICERO)	Clarified wording is now used, with focus on the most up-to-date assessment improved within the paragraph.
324	79143	SPM	3	28	3	31	Detailed information on drivers interactions are very short - almost the headline information. This is not clear message for policy makers - need more explanation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Clarified wording is now used, although conciseness of the paragraph has been increased to address the full suite of comments received.
325	79144	SPM	3	28	3	31	It would be helpful to more clearly spell out what the climatic, biophysical and non-climatic drivers of vulnerability and exposure are. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Improved wording has been used, moving away from use of "drivers."
326	85179	SPM	3	28	3	31	This statement is so blindingly obvious that I can understand it has a "very high confidence" but who could possibly disagree with it? (Vincent Gray, Climate Consultant)	Clarified wording is now used, with focus on the most up-to-date assessment improved within the paragraph.
327	63880	SPM	3	28	5	4	Change order of paragraphs: The order as it is currently is mixing the various systems, i.e. it starts with the human system (L 28-36), continues with hydrological, terrestrial systems (P 3 L 38-56, P 4 L 1-10), then again the human system (P 4 L 12-43). It would be more comprehensible to start with the fewer paragraphs on hydrological/terrestrial etc. systems, being followed by the larger amount of paragraphs on the human system. It would also be good to separate meteorological phenomena like droughts from impacts on hydrological systems and terrestrial plant and animal species (e.g., droughts are mentioned in both latter paras.) Box SPM.3 and its Figure 1 could be moved after the paragraph on "climatic and biophysical drivers interact with non-climatic drivers of vulnerability and exposure..." (P 3 L 28-31) because it provides further information on the very short paragraph. (GERMANY)	Ordering of paragraphs throughout the section has been substantially clarified, with a separate subsection for vulnerability and exposure now included.
328	63882	SPM	3	29	3	29	After "impacts" add "on people and communities". Reason: it should be said clearly in the first sentence what or who is at risk (just like given in the legend of Box SPM.3 Figure1). (GERMANY)	This statement is no longer included within the summary for policymakers.
329	68313	SPM	3	29	3	30	Please notice that in chapter 19 the paragraph 19.6.1.3 starts with "Vulnerability and exposure of societies and social-ecological systems...". In the TS and SPM this changes to "Vulnerability and exposure of communities or social-ecological systems...". There are differences between societies and communities. The term society is more general, and it also refers to a social kind of organization, like human ones, but not all communities are social. In a biological context, community can refer to a community of animals or plants. In this case it is clear from the content of the paragraph that the the subject is human, so in the summaries the term "communities" should probably be changed to "societies". (NETHERLANDS)	This statement is no longer included within the summary for policy makers.
330	62417	SPM	3	29	3	31	"Vulnerability and exposure of communities or socio-ecological systems to climatic hazards are dynamic and thus vary across temporal and spatial scales". This a very loaded and generic statement and needs further clarification. (INDIA)	This statement is no longer included within the summary for policy makers.
331	63883	SPM	3	29	3	31	An example should be added to demonstrate the different temporal and / or spatial scales. Therefore, please insert at the end of this para "Effective risk reduction and adaptation strategies consider these dynamics and the inter-linkages between socio-economic development pathways and the vulnerability and exposure of people. Changes in poverty or socio-economic status, race and ethnicity compositions, age structures, and governance have had a significant influence on the outcome of past crisis associated with climatic hazards." Source: TS P 5 L 54 - P 6 L 1. (GERMANY)	This finding is reflected in the 1st paragraph of section C-1.
332	59763	SPM	3	30	3	30	Comprehensiveness could be enhanced by providing specific reference to the influence of political systems / institutions in this section as mentioned in Chapter 14 and 16 (AUSTRALIA)	This statement is no longer included within the summary for policy makers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
333	62079	SPM	3	31	3	31	It would be more reader-friendly if the authors could briefly explain what to expect in the sections in between square brackets. Alternatively, if the document could be made interactive, it would be great to have the possibility of going over the chapter section numbers with the mouse and then have a box come up with the title and first few lines/paragraphs of that section (a.k.a. the comment boxes in Excel Sheets). (Joann de Zegher, Stanford University)	A clarifying introduction to supporting chapter references is now made at the start of the document. Additionally, the references are provided within footnotes to enhance accessibility. Electronic links will be included within the final version of the electronic report.
334	68314	SPM	3	33	3	33	What is the definition of "extreme climate events" or should "extreme weather" events be used. (NETHERLANDS)	Definitions are provided accordingly in the report glossary.
335	68315	SPM	3	33	3	33	"...some ecosystems, many human systems": please add some examples, to make this concrete. (NETHERLANDS)	The overall findings are presented here in the summary for policymakers, with supporting examples included in the technical summary.
336	62670	SPM	3	33	3	34	Is there some close relations between extreme climatic events and current climate variability? How could we use "change" to replace "variability"? (RONGSHUO CAI, Third Institute of Oceanography)	This finding intentionally focuses on climate variability not on climate change.
337	68316	SPM	3	33	3	34	Confidence level of the summary (bold) sentence seems not valid for Australasia as the results are only with medium to high confidence (Box 25-8, 25-6, 25-5) (NETHERLANDS)	This is a highly integrative finding that spans many examples across regions. Chapter 25 also states 'very high confidence' on the existence of the adaptation deficit, medium to high confidence is for the projected future change in extremes.
338	61732	SPM	3	33	3	35	Sentence needs to be clearer. What does "significant" mean here? Perhaps reword as: "The impacts of recent extreme climatic events have highlighted that some ecosystems and many human systems are very vulnerable to current climate variability". Also, what "recent extreme climatic events" are being referred to? It would be very useful to provide some examples to illustrate the point. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Specific examples supporting this finding are provided in the technical summary, as well as in the referenced chapter sections. The choice of appropriate adjectives is always a challenge. Use of "significant" has been deemed the most appropriate, instead of "very."
339	63885	SPM	3	33	3	35	Impacts of extreme climatic events show vulnerability of ecosystems and human systems but are hardly explained in a more detailed manner in Table SPM.1. The information from the bullet points from TS, P6, L 17-37 should be added. (GERMANY)	Although extended examples can be found in the technical summary and in the referenced chapter sections, conciseness is maintained here given the stringent length limits of the summary for policymakers overall.
340	79145	SPM	3	33	3	35	Can we say which sectors are particularly vulnerable? Also, the language here seems to be being actively conservative - is it 'consistent with' or can we say it 'demonstrates' an adaptation deficit, since we are talking about observed extreme events? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Specific examples are given in the technical summary and in the underlying chapter sections. Box SPM.3 also provides relevant information on multidimensional vulnerability. The terminology within the sentences in this paragraph was judged to be most appropriate given the findings of the assessment.
341	62419	SPM	3	33	3	36	Can it be more specific.... (INDIA)	Specific examples are given in the technical summary and in the underlying chapters, with conciseness of the findings favored in the summary for policy makers.
342	63884	SPM	3	33	3	36	Please provide some examples (regions or highly vulnerable systems) for "some ecosystems and many human systems" - otherwise this statement is lacking in content. Further, why are there no regional chapters from developing countries mentioned to support this statement (e.g. Ch 22, 24, 27)? Human systems in developing countries are probably most vulnerable (human systems in Asia are for example highly exposed to and highly vulnerable to extreme climatic events; see Ch 24P 34 L 10 to P 35 L 7). (GERMANY)	Specific examples are provided in the technical summary and in the referenced chapter sections. Broader reference to relevant regional chapter assessment is now made.
343	70284	SPM	3	33	3	36	With respect to vulnerability to human systems the Table SPM .1 entry for N.America (page 28 upper right corner) provides a key example. As such the relevant main WGII section should be referenced also here at page 3. (SWEDEN)	Reference to chapter 26 is now made for this finding.
344	70325	SPM	3	33	3	36	In principle true what is stated. But is the "adaptation deficit" caused by changes in climate or by socio-economic changes? Often it is the latter. If so, this should be mentioned. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The described deficit refers to current status of adaptation, and not to effects of climate change to date.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
345	57377	SPM	3	33	33	34	Yes. Many ecosystems and human systems suffer impacts from current climate extremes. For changes in GMST <4 deg, most impacts of climate change will be from similar evnets, though perhaps more severe or more frequent. This must be the starting point for adaptation. (Tony Weir, University of the South Pacific)	Assessment of future impacts and risks is provided in section B.
346	78125	SPM	3	34	0	0	which human systems show significant vulnerability? Reading table SPM1 I would not conclude this... (Christiano de Campos, Petroleo Brasileiro SA)	This is a finding about climate variability, not about detected impacts of climate change. Please also see Box SPM.3 for information on multidimensional vulnerability relevant to understanding vulnerability in human systems.
347	70236	SPM	3	34	3	34	"current climate variability" is a bit ambiguous expression. Does it refer to "natural climate variabilit"y or one that is being changed by climate change? (SWEDEN)	This finding is about vulnerability and exposure to observed climate variability and not about observed impacts of climate change.
348	62418	SPM	3	34	3	35	"Adaptation deficit in developed and developing countries..." The impacts of the extreme events cannot be generalized to be the same for developing and developed countries. Suggest qualifying the sentence that there is significant adaptation deficit of varying degrees in developed and developing countries, with high deficit in the developing countries. (INDIA)	The nature of adaptation deficits differs across countries, but this finding is asserting the existence of such deficits in both developing and developed countries.
349	79146	SPM	3	35	3	35	It might be helpful to give some examples of the sectors and regions where there is an adaptation deficit (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Specific examples are provided in the technical summary and in the underlying chapters, but a concise finding has been retained in the summary for policymakers as in the previous draft.
350	63887	SPM	3	38	0	0	Please insert the para on glaciers from TS (P 8, L 7-9) ("Glaciers worldwide continue to shrink (very high confidence)...") . (GERMANY)	This finding is now included within the section.
351	70960	SPM	3	38	0	0	Are rainfall and glaciers highlighted because of attribution? Hydrologic systems have also changed due to changes in snowfall, cover and snow melt. (CANADA)	This point is now reflected.
352	58313	SPM	3	38	3	38	Glaciers do not conclude cryosphere,the water resources extent is too large, which change is not caused by climate change all.This conclusion refer to cryosphere, however, the report do not conclude it,silt change influenced by other factors.I suggested change "glaciers" to "cryosphere", "water resources" to river flow and quality, and add to "factors than climate change" at the same time. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	This finding has now been clarified based on the underlying chapters.
353	62421	SPM	3	38	3	38	Replace "many" with "several" (INDIA)	Improved wording is now used.
354	70547	SPM	3	38	3	38	Add increased temperature instead of or in addition to melting glaciers. The increased temperature affects evapotranspiration, snow accumulation and snow melt and the glaciers. (Hege Hisdal, Norwegian Water Resources and Energy Directorate)	Improved description of the relevant changes in drivers is now included based on the underlying chapter conclusions.
355	80302	SPM	3	38	3	38	All the observed changes summarized in this bullet are physical changes (changing rainfall, melting glaciers, duration of droughts, frequency of floods, changes and degradation of permafrost). The bullet is a much too general summary of what the WGI AR5 assesses and concludes. We suggest to very carefully check the relevant WGI assessment and, if possible, also refer to this assessment here. (Gian-Kasper Plattner, IPCC WGI TSU)	Harmonized assessment has been a focus of the revision, with material included here reduced.
356	80598	SPM	3	38	3	38	"Glaciers" does not include cryosphere. "water resources" is too general, and the impacts on water quality are not wholly from climate change. SUGGESTION: replace "galciers" with "cryosphere"; specify "water resources" with "river flow and quality" and add after it that "the impacts are also from other non-climate-change factors" (Jiahua PAN, Chinese Academy of Social Sciences)	Substantially improved wording has been adopted to clarify this finding, based on the underlying chapter conclusions.
357	79147	SPM	3	38	3	41	"hydrological systems have changed" but how? "Duration of droughts has been affected by climate change" - how? Longer or shorter? Different in different regions? This needs to be a bit more specific to be of interest to the policymaker. Also, why is there no confidence level associated with this? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Clearer articulation of the most important conclusions has been achieved in the revised draft.
358	70592	SPM	3	38	3	42	If the point is that these changes are attributable to global warming, then clarify this. Otherwise, it would be helpful to state the nature of the changes. (NEW ZEALAND)	The paragraph has been further revised to emphasize attribution to climate change.
359	57777	SPM	3	38	3	43	What is the time frame for this statement? One is needed....months/ years, decades, ? As the text states, the time frame in the last sente3nce appears only associated with the findings stated in that sentence. (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	Throughout this section, a consistent approach of not specifying start dates for the qualitative findings has been adopted. Time frames for measurements in figure 2 (a new figure) are provided for the observed indicators of a changing climate (panels B-E).

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360	61733	SPM	3	38	3	43	The changes to floods due to climate change is noted here to be of medium to low confidence. When looking at Chapter 3, pg 2 lines 49-53 this same statement is given with robust evidence and high agreement. The caveat is however given that this may not apply to large basins. The statements seem somewhat ambiguous and could be rephrased to give a more clear and consistent statement. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This finding is no longer included in the paragraph.
361	62420	SPM	3	38	3	43	Rain pattern is not included under hydrological system (INDIA)	Rain patterns are included within the scope of this paragraph in terms of the discussed changes in precipitation and consequences for hydrological systems.
362	63886	SPM	3	38	3	43	Please provide some examples for "many regions due to changing rainfall or melting glaciers" and "many river systems"- otherwise this statement is lacking in content. For example, "melting glaciers", such as in East Africa, the Alps, Himalayas and Central Asia, in the Andes, and the Polar regions (see SPM page 19 table SPM.1), or refer to the table SPM.1. (GERMANY)	Global distribution of observed impacts is summarized through figure 2, a new figure.
363	66279	SPM	3	38	3	43	Surely one of the more certain recent and projected shifts in mid- to high-latitudes has been in the seasonality of discharge and flow rates. (Timothy Carter, Finnish Environment Institute)	Given the need to reduce the length of the summary for policymakers, this paragraph has been shortened rather than extended.
364	68317	SPM	3	38	3	43	Please check the reference to the main tekst. Could it be that instead of 3.2.3 it should rather be 3.2.5, 3.2.6 and 3.2.7? (NETHERLANDS)	Correct reference is now given.
365	79789	SPM	3	38	3	43	Please consider to highlight the findings about droughts, floods and permafrost in the bolded text. (NORWAY)	Clearer, shorter conclusions are now presented in this paragraph.
366	85180	SPM	3	38	3	43	Surely no climate syatem remains exactly the same for ever. Change is inevitable. (Vincent Gray, Climate Consultant)	This paragraph presents impacts of climate change observed in the recent century.
367	64885	SPM	3	39	3	39	Affecting water resources, water quality, agricultural (crop) adjutment processes and sediment..... (Md Younus, Lecturer, School of the Environment, Flinders University, Research Fellow, Adelaide University, South Australia)	For clarity, the list has been shortened rather than extended.
368	61734	SPM	3	39	3	40	The text indicates that the duration of droughts in some regions has been altered due to climate change. No levels of confidence are indicated. Chapter 3 indicates a medium confidence for this assessment, recognising however that this depends on the type of drought and the indices used for characterisation. Furthermore, Chapter 1, p.22, ln. 49 indicates that the assessment of a global increasing trend in the AR4 is no longer valid. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This finding is no longer included in the summary for policy makers.
369	63298	SPM	3	39	3	40	Statement on drought duration should have confidence level associated with it. In general the wider impacts of drought could be expanded on, e.g. drinking water supplies, irrigation requirements and freshwater ecosystems, especially in the context of growing population and demand. (IRELAND)	This finding is no longer included in the summary for policymakers.
370	66058	SPM	3	39	3	40	Information about confidence is missing in the sentence "The duration of droughts in some regions has been altered by climate change". (FINLAND)	This finding is no longer included in the summary for policymakers.
371	78126	SPM	3	39	3	40	droughts in which regions? From table SPM1 I can't identify. (Christiano de Campos, Petroleo Brasileiro SA)	This finding is no longer included in the summary for policymakers.
372	79788	SPM	3	39	3	40	What do you mean by "has been altered"? Less or more? Confidence level could also be included. (NORWAY)	This finding is no longer included in the summary for policymakers.
373	80303	SPM	3	39	3	41	The statements on droughts and floods both speak of 'altered by climate change' but give no indication of the sign of change. These statements as currently written don't seem particularly useful. In addition, there is no confidence attached to the drought statement. (Gian-Kasper Plattner, IPCC WGI TSU)	These findings are no longer included in the summary for policymakers.
374	60507	SPM	3	40	0	0	Have you studied the impact of chemtrails? (Hélène CONNOR LAJAMBE, HELIO International)	The statements on which this comment is made are no longer included in the summary for policymakers.
375	62886	SPM	3	40	0	0	It may be checked if the word 'altered' after 'regions has been' can be relaced with 'increased', (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	This statement is no longer included in the summary for policy makers.
376	63888	SPM	3	40	0	0	Please insert confidence level: "...by climate change (medium confidence)". (TS, P 8, L 40) (GERMANY)	The statement is no longer included within the summary for policymakers. A sentence has been added to the box on calibrated uncertainty language to clarify interpretation within a paragraph.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
377	78127	SPM	3	40	0	0	Which river systems has been altered or how many in which regions? From table SPM1 I can't identify. (Christiano de Campos, Petroleo Brasileiro SA)	This statement is no longer included in the summary for policy makers.
378	65598	SPM	3	40	3	0	Can we say what proportion of river systems floods have become more common? And in how many less? (David Flint, Cass Business School)	This statement is no longer included in the summary for policymakers.
379	68318	SPM	3	40	3	40	"..The frequency of floods has been altered.": Does it mean an increase or decrease or for example depending on the geography ? (NETHERLANDS)	This statement is no longer included in the summary for policymakers.
380	62422	SPM	3	40	3	41	Given the low confidence, and few observations use of "many" is not appropriate. "A few", is better, probably. (INDIA)	This statement is no longer included in the summary for policy makers.
381	64332	SPM	3	41	3	42	Revise to clarify the significance of permafrost degradation to hydrology - it will not be obvious for most readers. (Don Lemmen, Canada National Study)	The revised wording is clearer, although additional explanation has not been added given space constraints.
382	68319	SPM	3	41	3	42	Chapter 18 clearly mentions that the permafrost in the arctic has receded and on the other hand ice layer in Antarctic region has increased and hence the generalisation of decrease of ice layer of whole permafrost region seems not an accurate summary of the chapter. (NETHERLANDS)	Use of the word "widespread" has been removed, and the traceable account in the underlying chapter sections supports the revised wording.
383	60441	SPM	3	41	3	43	Possible implication of changes in permafrost on hydrology are not indicated (DENMARK)	Clearer wording has been adopted, although the sentence has not been expanded given space constraints.
384	70326	SPM	3	41	3	43	This section starts with issues related to hydrological system. The mentioned changes in permafrost characteristics are, however, mainly triggered by increasing temperatures (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	"warming" is now mentioned in the finding to enhance clarity.
385	79148	SPM	3	41	3	43	Could the point on permafrost be a separate bullet, as although linked to hydrological system, it's not a direct corollary. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The now shortened paragraph presents a series of related findings that work together as a whole.
386	57437	SPM	3	45	0	0	I think it would be useful to include the term 'phenology' in parentheses after 'seasonal activities'. The term is used in common language and it is important to use these terms to raise awareness. (Alison Donnelly, Trinity College Dublin)	To aid accessibility to the policymaker audience, the more scientific term "phenology" has not been added.
387	70961	SPM	3	45	0	0	Suggest clarifying what is meant by "seasonal activities". (CANADA)	"seasonal activities" refers, in more common language, to phenology, but the more scientific term has not been added in order to ensure accessibility to the policymaker audience.
388	58314	SPM	3	45	3	46	The conclusion is high confidence, however, the following explanation is medium confidence. So I suggest to change the conclusion of bold print to medium confidence. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	As now clarified in the box on calibrated uncertainty language (Box SPM.2), conclusions within a paragraph can have different degrees of certainty.
389	61735	SPM	3	45	3	46	Not clear what you are you trying to say with this statement. Also, is the high confidence attached to the first half of the statement or second half ("they are doing so now")? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The construction of the sentence has been simplified to enhance clarity.
390	79791	SPM	3	45	3	46	Please consider to clarify what is meant by "in many regions", is it also related to the past? Also consider to include some of the examples from line 47 to line 48 in the bolded text. (NORWAY)	The phrase has been removed, and the subsequent statement focused.
391	80599	SPM	3	45	3	46	The confidence level for the conclusion is high, however, the confidence level for its explanation is medium. SUGGESTION: change the "high confidence" with "medium confidence" for the conclusion sentence with bold type. (Jiahua PAN, Chinese Academy of Social Sciences)	As now clarified in the box on calibrated uncertainty language (Box SPM.2), conclusions within a paragraph can have different degrees of certainty.
392	63890	SPM	3	45	3	47	Please provide some examples for "many regions" - otherwise this statement is lacking in content. (GERMANY)	The phrase has been removed.
393	66280	SPM	3	45	3	47	Comma after "abundance" is not needed, but the more serious point is that there is ambiguity in this statement. How does "the past" differ from "doing so now"? The past could refer to palaeoclimatic changes - does it? I would interpret "now" as the present-day (i.e. an instant), but I wonder if this is actually supposed to refer to ongoing changes in recent years or decades? (Timothy Carter, Finnish Environment Institute)	The ambiguous wording has been removed.
394	57778	SPM	3	45	3	51	What is the time frame for this statement? One is needed....months, years, decades, ? (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	Within this section, specific time frames are not given for the qualitative statements, although they are specified for quantitative information provided in figure 2, a new figure.

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395	57918	SPM	3	45	3	51	The response of species is complex. Need to mention that population decline of some pest species linked to climate warming (e.g. locust outbreak in China over millennia years, the disappearance of lemming cycles in Scadinavia regions, the unexpected collapse of expected cycles of this budmoth <i>Zeiraphera diniana</i> Guénée during the 1990s). Zhang,Z.B.*. 2011. Reconstruction of a 1,910-y-long locust series reveals consistent associations with climate fluctuations in China. PNAS, 108: 14521–14526. Kausrud, K. L., A. Mysterud, H. Steen, J. O. Vik, E. Ostbye, B. Cazelles, E. Framstad, A. M. Eikeset, I. Mysterud, T. Solhoy, and N. C. Stenseth. 2008. Linking climate change to lemming cycles. Nature 456:93-U93. (Zhibin Zhang, Institute of Zoology, Chinese Academy of Sciences)	The specific examples represent too much text to justify inclusion within the summary for policymakers given stringent page targets.
396	62423	SPM	3	45	3	51	Section A.i.: While the text in bold (lines 45 - 47) highlights a high confidence the shifting of terrestrial plants and animals, the subsequent lines (47 - 51) do not support/elaborate further on this statement. Instead they describe low confidence of species extinction and medium confidence on outbreak of forest fires etc. Thus there seems a disconnect. Lines 47 to 51 may be modified to support the statement in bold. (INDIA)	The flow across the related conclusions presented in this paragraph has been improved.
397	62424	SPM	3	45	3	51	A few more examples may also be given for Central America region. (INDIA)	Specific regional examples are included in the technical summary Table TS.1, as represented visually in figure 2, a new figure.
398	63889	SPM	3	45	3	51	It would be helpful to indicate - if possible - whether these changes are still reversible or already irreversible. (GERMANY)	Findings to support such additions are not available in the underlying chapters.
399	65645	SPM	3	45	3	51	Terrestrial plant and animal species do not shift their ranges nor change their abundance. This implies a conscious decision is made by the species to move or downsize. Better wording would be: "The geographic ranges and seasonal patterns of activity of terrestrial plant and animal species have shifted and abundances have altered, in response to climate change in the past, and this is now occurring in many regions." Range and phenological change occur due to the summation of individual responses at the population/meta-population level in a species. This is sloppy science writing, and unfortunately pervades the literature. Wincingly I have done it myself! (Please note overpage the wording for marine species is correct. I spotted this in the previous version of the oceans chapter). (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The chapter teams do not feel that the current wording inappropriately implies conscious intent.
400	68320	SPM	3	45	3	51	When reading the tekst, the reasoning behind the statement does not seem to entirely support the statement nor give evidence for such a strong statement (NETHERLANDS)	The paragraph presents a series of related conclusions, not simply an assertion followed by its support. Flow across the statements in the paragraph has been improved.
401	79790	SPM	3	45	3	51	Some of the selected examples are not reflected in Table SPM1. Consider including them in Table 1. (NORWAY)	This table is no longer included in the summary for policymakers.
402	80600	SPM	3	45	3	51	The response of species is complex. SUGGESTION: Need to mention that population decline of some pest species linked to climate warming (e.g. locust outbreak in China over millennia years, the disappearance of lemming cycles in Scadinavia regions, the unexpected collapse of expected cycles of this budmoth <i>Zeiraphera diniana</i> Guénée during the 1990s). Reference : : Zhang,Z.B.*. 2011. Reconstruction of a 1,910-y-long locust series reveals consistent associations with climate fluctuations in China. PNAS, 108: 14521–14526. Kausrud, K. L., A. Mysterud, H. Steen, J. O. Vik, E. Ostbye, B. Cazelles, E. Framstad, A. M. Eikeset, I. Mysterud, T. Solhoy, and N. C. Stenseth. 2008. Linking climate change to lemming cycles. Nature 456:93-U93. (Jiahua PAN, Chinese Academy of Social Sciences)	The specific examples represent too much text to justify inclusion within the summary for policy makers given stringent page targets.
403	85181	SPM	3	45	3	51	Surely no climate syatem remains exactly the same for ever. Change is inevitable. (Vincent Gray, Climate Consultant)	This paragraph describes observations for species and ecosystems.
404	70237	SPM	3	46	3	46	Is the reference to species responding to climate change in the past needed here? The key feature is that species are responding today. (SWEDEN)	This ambiguous reference has been removed.
405	70593	SPM	3	47	0	0	Insert "wild" before "fires" (NEW ZEALAND)	This statement has been removed from the summary for policymakers.
406	68322	SPM	3	48	3	48	It might be useful to rephrase the conclusion about increased droughts. In most regions there is low confidence in drought trends, except for some specified regions (see Table SPM1 from WGI). (NETHERLANDS)	This conclusion has been substantially reworded to enhance clarity, now focusing only on tree mortality.
407	59764	SPM	3	48	3	49	The language of this section could be improved to strengthen clarity (AUSTRALIA)	This conclusion has been substantially rewarded to enhance clarity.
408	61736	SPM	3	48	3	49	If the confidence in this statement is very low then there is little use in mentioning it in the SPM. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This conclusion has been substantially reworded to enhance clarity.
409	68321	SPM	3	48	3	49	Please take in consideration the usefulness of statements with very low confidence. (NETHERLANDS)	This conclusion has been substantially reworded to enhance clarity.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
410	70327	SPM	3	48	3	49	Why include an example with "very low confidence" (attribution of species to climate change) in a SPM. To my opinion it is better to mention the opposite: There are only very few examples where climate played a role in species extinction, like the Central American amphibians. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This conclusion has been substantially reworded to enhance clarity.
411	70962	SPM	3	48	3	49	The sentence ("there is very low confidence that most observed species extinction can be attributed to recent climate warming") could be interpreted in different ways. Does it mean that most observed (recorded) extinctions can be attributed to climate change but only with very low confidence (perhaps because while there may be good agreement, there is little evidence)? Or does it mean that we cannot attribute many of the observed extinctions to climate change? Would a statement that "Most observed extinctions cannot be attributed to recent climate warming (very low confidence) also be true? The fact that the next sentence begins with 'however' seems to imply that in most extinction cases, recent warming has not played a role. Suggest clarifying. (CANADA)	This conclusion has been substantially reworded to enhance clarity.
412	79792	SPM	3	48	3	49	The important point here is not the low confidence to which recent species extinctions can be attributed to climate change, but that it is very difficult to attribute climate change to species extinctions due to confounding factors such as habitat loss/fr (NORWAY)	This conclusion has been substantially reworded to enhance clarity.
413	66281	SPM	3	48	3	50	These are very odd statements to place side by side. Why bother reporting on "most species extinctions"? If there is little evidence, in most cases, to link extinctions to climate change, there must be a better way of stating this! Moreover, why choose this one particular example (with only medium confidence itself) to illustrate where attribution can be demonstrated. It begs the question whether this is the only one, or if not, then where the others have been found. (Timothy Carter, Finnish Environment Institute)	This conclusion has been substantially reworded to enhance clarity.
414	70285	SPM	3	48	4	51	Can the "is low confidence ... can be associated to" be reformulated as "is high confidence ... can not be associated to"? This would be a stronger and more relevant statement. (SWEDEN)	This general approach has been taken to improve the clarity of the statement.
415	62887	SPM	3	49	0	0	Please see if the word 'solely' can be added after 'can be attributed'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	The conclusion has been substantially reworded to enhance clarity.
416	70238	SPM	3	49	3	49	Rather than mentioning what is known with low confidence ("most observed extinctions"), could one state what is known with a higher level of confidence. Or, if the assessment is that observed extinctions in general cannot be attributed to climate change (which the final sentence in the paragraph would seem to suggest), rewording would seem useful, for clarity. (SWEDEN)	This general approach has been taken to enhance the clarity of the statement.
417	80304	SPM	3	49	3	49	At the first use of 'recent warming' it would be useful to give an indication of what time period this refers to. Avoid confusion with the so-called 'hiatus' period in warming over the last decade or so, see Final Draft WGI AR5 Box.9.2. (Gian-Kasper Plattner, IPCC WGI TSU)	Use of "recent" is not intended to refer only to the last decade.
418	58768	SPM	3	49	3	50	Further clarify what "played a role" means for amphibian extinction due to climate change (William Landuyt, ExxonMobil Research and Engineering)	The wording has been substantially clarified.
419	65311	SPM	3	50	0	51	There is disagreement in the assessment of degree of confidence in attribution to warming in cited chapters (See lines 26-29, p. 17 of WGIIAR5-Chap18_SODall and line 42, p. 32 to line 1, p. 33 of WGIIAR5-Chap4_SODall). (Lourdes Tibig, The Manila Observatory)	Assessment has been considered across these chapters to ensure appropriate harmonization.
420	80305	SPM	3	50	3	50	"has played a role" is very vague. Could this be quantified? (Gian-Kasper Plattner, IPCC WGI TSU)	The wording of the statement has been substantially improved.
421	63891	SPM	3	51	3	51	To use the term "gender" in this context is contra productive. The term "gender" refers to the physical, mental, and behavioral characteristics distinguishing between masculinity and femininity, hence is socially constructed. The term "sex" distinguishes between men and women biologically. People are discriminated / more vulnerable because of their sex not because of their gender. Therefore, in this paragraph the term "sex" should be used, not the term "gender". (GERMANY)	This comment is presumably referring to page 4. 'Gender' is being used appropriately in that context, consistent with usage in the literature.
422	78128	SPM	3	53	0	0	which ecosystems are early warning? It could be highlighted in table SPM1. (Christiano de Campos, Petroleo Brasileiro SA)	These conclusions are no longer included in the summary for policymakers.
423	63892	SPM	3	53	3	54	As several paras of the TS discuss ocean acidification we feel this issue has not been adequately addressed in the SPM. Please insert after the first sentence of the finding the finding from TS (P12, L28-30): "Rising atmospheric CO2 not only causes ocean warming....behavior to population dynamics (medium to high confidence)." (GERMANY)	Within the summary for policymakers, ocean acidification is featured in section B. Within the technical summary, a statement on emerging evidence of observed impacts of ocean acidification is included.
424	66282	SPM	3	53	3	55	Which parts of the boreal zone are experiencing mortality; what tree species? No sign of this in the Finnish part of the zone! (Timothy Carter, Finnish Environment Institute)	This conclusion is no longer included in the summary for policymakers.
425	62425	SPM	3	53	3	56	Biodiversity loss is given with reference to South America region. Under this context, examples of Asian countries may also be included. (INDIA)	This conclusion is no longer provided in the summary for policymakers.
426	61737	SPM	3	53	4	2	Again it's not clear what the key message is in this paragraph. Is it climate change or not? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This paragraph is no longer included in the summary for policymakers.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
427	63893	SPM	3	53	4	2	An additional explanation is necessary to clarify how climatic and non-climatic drivers concur. Please add at the end of the passage: "In Europe, climate change has already affected the distribution and abundance of some animals and plant species in Europe (high confidence). (...) Observed climate warming has increased forest productivity in northern Europe (medium confidence) and fire incidence in southern Europe (high confidence)." Source: TS P 9 L 47-51. (GERMANY)	This paragraph is no longer included in the summary for policymakers.
428	85182	SPM	3	53	4	2	Surely no climate system remains exactly the same for ever. Change is inevitable. (Vincent Gray, Climate Consultant)	This paragraph is no longer included in the summary for policymakers.
429	70963	SPM	3	53	54	0	Suggest that this finding should have a confidence or agreement/evidence statement associated with it. (CANADA)	This paragraph is no longer included in the summary for policymakers.
430	63299	SPM	3	54	3	54	Wording "regime shifts" is not appropriate in this context. Suggest "ecosystem shifts" or similar (IRELAND)	This paragraph is no longer included in the summary for policymakers.
431	79793	SPM	3	55	3	56	Boreal forest tree mortality has low confidence. A example with higher confidence, related to carbon stored, as mentioned on page 9 lines 47-48. "The carbon stored thus far in terrestrial ecosystems is vulnerable to loss back to the atmosphere as a result (NORWAY)	This paragraph is no longer included in the summary for policymakers.
432	63894	SPM	3	55	4	1	Please add indication, that the conversion of natural ecosystems is human induced. (GERMANY)	This paragraph is no longer included in the summary for policymakers.
433	63895	SPM	3	56	0	0	It is not clear, whether the term 'Conversion' generally consider anthropogenic activities. Therefore add after 'conversion': "particularly anthropogenic activities". (GERMANY)	This paragraph is no longer included in the summary for policymakers.
434	79149	SPM	3	56	3	56	Conversion of natural ecosystems' feels like a euphemism for deforestation - is it? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This paragraph is no longer included in the summary for policymakers.
435	70328	SPM	3	56	4	2	Why include here an impact of land-cover changes in a report on impacts of climate change (esp. When there is again an attribution issue). (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This paragraph is no longer included in the summary for policymakers.
436	59768	SPM	4	0	4	0	Commentary on impacts to infrastructure and assets should also be included in the discussion (AUSTRALIA)	Commentary related to these topics is provided in the paragraph starting on page 3, line 35.
437	62426	SPM	4	0	4	0	Section A.i.: Water related conflicts (shortage/excess) across nations/ between regions within a nation may be included (INDIA)	Findings on this topic with appropriate scope for the section are not sufficiently featured in the assessment to merit inclusion here.
438	65312	SPM	4	1	0	2	There is some distinction between "observed recession and degradation of the Amazon forest cannot be attributed to climate change"(lines 1-2, p.4) and "Several impacts are associated to many confounding causes and although detection of change maybe found with high levels of confidence, the confidence is low to very low. In this category are included the degrading and recessing of the Amazon rainforest, mangrove degradation in the northern coast of south America..." (lines 50-53, p.37 or 18.5.6 of WGIIAR5-Chap18_SODall) (Lourdes Tibig, The Manila Observatory)	This paragraph is no longer included in the summary for policymakers.
439	68323	SPM	4	1	4	1	Please check the very strong position taken (on the Amazon). Even though it may be elaborated well in chapter 18, a brief explanation would strengthen the position taken. (NETHERLANDS)	This paragraph is no longer included in the summary for policymakers.
440	63300	SPM	4	1	4	2	Suggest delete statement about the Amazon forest, as it is not relevant to the discussion of climate change in this context. (IRELAND)	This paragraph is no longer included in the summary for policymakers.
441	63896	SPM	4	1	4	2	Please add level of confidence. (GERMANY)	This paragraph is no longer included in the summary for policymakers.
442	70594	SPM	4	1	4	2	Useful statement (what observations cannot be attributed to climate change) (NEW ZEALAND)	This paragraph is no longer included in the summary for policymakers.
443	79794	SPM	4	1	4	2	Consider to state the driver of recession and degradation of the Amazon forest. See TS p. 9, l. 54 - p. 10, l. 12 (NORWAY)	This paragraph is no longer included in the summary for policymakers.
444	76149	SPM	4	1	4	56	The inconsistent application of agreement, evidence and confidence descriptors is confusing throughout the SPM. It is particularly evident on this page where almost every major finding has its own unique number of uncertainty descriptors. Recognizing that these are drawn from the underlying chapters suggests that this problem is widespread throughout the document. (UNITED STATES OF AMERICA)	This section now further features statements for which levels of confidence are provided. In general, however, it is not inconsistent to use agreement and evidence as well as confidence, in accordance with the guidance provided to authors.
445	60508	SPM	4	2	0	0	Cannot there be some indirect impact on the Amazon? (Hélène CONNOR LAJAMBE, HELIO International)	This paragraph is no longer included in the summary for policymakers.
446	68324	SPM	4	2	4	2	Please add a level of confidence to the statement, as it seems different than an earlier Amazon statement. (NETHERLANDS)	This paragraph is no longer included in the summary for policymakers.
447	79150	SPM	4	2	4	2	Amazon forest cannot YET be attributed..! (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This paragraph is no longer included in the summary for policymakers.

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448	61738	SPM	4	4	0	0	avoid "likely" especially since factors and other than climate are noted to be more important (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The comment is not clear, as likely is not used on this line.
449	80306	SPM	4	4	4	4	"warming-induced stratification, reduced intensity of ocean circulation" -- It's not clear what you mean with the very general conclusion of "reduced intensity of ocean circulation". This general statement of ocean circulation changes is not backed up by the assessment of Chapter 3: Observations -- Ocean of WGI AR5. Suggest to reword the sentence to be compatible with the WGI AR5, Chapter 3, assessment. (Gian-Kasper Plattner, IPCC WGI TSU)	This conclusion is no longer included in the summary for policy makers.
450	62427	SPM	4	4	4	5	"Warming is causing shifting of species in marine system" may be elaborated further. (INDIA)	Given page constraints and interrelations among findings, a single paragraph is now used to present findings for ocean and terrestrial ecosystems.
451	70329	SPM	4	4	4	5	Mention also other drivers. Also in the Netherlands we found some interaction between warming and abundance of some fish species. But current pressure of fishing is clearly dominating, something that might be the case for many places in the world (as mentioned in chapter 6, pg 27, line 26) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The revised finding focuses on observed impacts of climate change for both ocean and terrestrial ecosystems.
452	79795	SPM	4	4	4	5	Please consider to indicate the direction of the shifts and also to include considerations related to biodiversity. (NORWAY)	For ocean systems, quantitative information on directions of shifts is provided within figure 2, a new figure.
453	61740	SPM	4	4	4	7	Any specific examples that can be included here? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Specific examples are summarized visually in the map-based figure included within figure 2, a new figure.
454	57779	SPM	4	4	4	10	What is the time frame for this statement? One is needed....months, years, decades, ? (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	A timeframe is provided only for the finding on natural climate change in the past millions of years. Time frames are not otherwise provided for qualitative findings in this section. Time frames are provided for quantitative information presented in figure 2, a new figure.
455	61739	SPM	4	4	4	10	Effects of warming and acidification on ecosystems should be mentioned here, including effects on coral bleaching. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Given limited examples of ocean impacts to acidification, a high level finding is not presented in the summary for policymakers. Many specific examples of ocean impacts are overviewed in figure 2, a new figure.
456	65646	SPM	4	4	4	10	Shifts in algal species, phytoplankton have also been noted and should be inserted here, "Fishes, seaweeds and invertebrates" delete their to give "and/or shifts to deeper and cooler..." (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This statement is no longer included in the summary for policy makers.
457	68325	SPM	4	4	4	10	Please consider the suggestion to use Box CC-OA and 30.6 as the source for this part instead of Box CC-CR. Box CC-CR is mainly talking about coral reefs and not talking about the global system such as organism and ecosystem shift, eutrophication, ocean circulation, stratification or the decrease of dissolved O2 which led to hypoxic or anoxic condition. (NETHERLANDS)	This paragraph has been substantially revised in its merging with material for terrestrial ecosystems. The most relevant ocean sections in the underlying report, in support of these conclusions, are provided.
458	76150	SPM	4	4	4	10	The references to supporting information for this SPM statement should include 6.1.3, 30.4, 6.1.1.3, 6.2.5.2, 6.1.2, and Box CC-CR. The reference to section 30.4.5 is incorrect as it does not exist in Chapter 30. (UNITED STATES OF AMERICA)	section references for the merged revised paragraph have been checked.
459	85183	SPM	4	4	4	19	There has been no "warming: for 15 years. Have all these changes stopped? (Vincent Gray, Climate Consultant)	Please see the working group 1 summary for policymakers for findings on recent warming that has occurred. The last decade is the warmest on record in recent times, for example.
460	76151	SPM	4	4	15	17	"Since AR4, there have been several periods of rapid food price increases, demonstrating partial sensitivity of current markets to climate variability." A drop in food and arable land reserves, coupled with a decline in increasing productivity rates relative to increasing demand, has boosted the volatility of global food prices. See e.g. Lester Brown, Christopher Barrett. If a rigorous attribution between climate change and food prices has been conducted, then cite it. However, care must be taken to ensure it reflects climate and not weather. (UNITED STATES OF AMERICA)	Revised wording fully supported by assessment in the underlying chapter sections has been adopted.
461	57438	SPM	4	5	0	0	I think it would be useful to include the term 'phenology' in parentheses after 'the timing of seasonal activities'. The term is used in common language now and it is important to use these terms to raise awareness. (Alison Donnelly, Trinity College Dublin)	In the newly merged paragraph, phenology is not used as it is a more scientific phrase that is less clear to the policymaker audience.

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462	63302	SPM	4	5	0	0	delete the sub-clause "resulting in altered species interactions". It does not add to the message and may introduce confusion. (IRELAND)	The phrase is now presented more clearly as separate to enhance clarity.
463	68326	SPM	4	5	4	7	Please note that the shift to cooler waters is not only observed for fishes and invertebrates, but also for plankton (phyto and zoo)(see fig. 30-11) (NETHERLANDS)	This statement is no longer included in the summary for policymakers.
464	63301	SPM	4	5	4	9	Statements on poleward shifts in distribution of marine species and expanded hypoxic regions should have separate confidence levels associated with them. (IRELAND)	This statement is no longer included in the summary for policy makers.
465	79151	SPM	4	6	4	6	..abundance of fish and invertebrates.. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is no longer included in the summary for policy makers.
466	63897	SPM	4	7	0	0	Please insert "..., regionally reduced intensity of ocean circulation,..", because a general reduced intensity of ocean circulation is not confirmed by IPCC AR5 WGI (chapter 3.6.) (GERMANY)	This statement is no longer included in the summary for policy makers.
467	68327	SPM	4	7	4	7	Please explain to which reduced ocean circulation this conclusion refers to. IF it refers to AMOC, it should be beared in mind that is it very difficult to conclude on projecting changes with high confidence (Drijfhout et al., 2012). (NETHERLANDS)	This statement is no longer included in the summary for policy makers.
468	70707	SPM	4	7	4	7	Please check if the suggestion of "reduced intensity of ocean circulation" is consistent with WGI findings, especially chapter 3 (and chapters within this report). (BELGIUM)	This statement is no longer included in the summary for policy makers.
469	61741	SPM	4	7	4	10	The finding relating to hypoxic regions is important and should be highlighted as an impact. The last sentence in this paragraph is also important. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The 1st statement has been deleted, but the 2nd has been retained and emphasized.
470	63303	SPM	4	8	0	0	Term "hypoxic" is introduced without explanation- "i.e. oxygen deprived" (IRELAND)	This statement is no longer included in the summary for policy makers.
471	59765	SPM	4	8	4	8	Spell out what 'hypoxic' means, this will not be a familiar word for many end-uers of this report. (AUSTRALIA)	This statement is no longer included in the summary for policy makers.
472	62671	SPM	4	9	4	10	"has led to" or "had led to"? (RONGSHUO CAI, Third Institute of Oceanography)	"Has" is correct.
473	63304	SPM	4	9	4	10	It may also be worth stating here that the rate of anthropogenic change is unprecedented in Earth history (as far as existing evidence allows) and therefore adaptaive capacity of natural ecosystem is further challenged. (IRELAND)	The magnitude of difference is now further emphasized.
474	68328	SPM	4	9	4	10	Please check the tekst of the last sentence of the statement, which is now difficult to understand. Could it be possibly be meant as follows: "In Earth's history, natural climate change occured at rates slower than today's antropogenic change which/and has led to significant ecosystem shifts in the oceans"? (NETHERLANDS)	Clearer wording is now used.
475	79152	SPM	4	9	4	10	The sentence " In Earch history ... Ocean" should include information on likelihood and conference. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	A sentence within the box on calibrated uncertainty language now clarifies interpretation of levels of confidence within a paragraph.
476	79796	SPM	4	9	4	10	This phrase appears somewhat disconnected and should be extended or removed. (NORWAY)	The sentence, which is important, has now been extended to present a clarified conclusion.
477	78129	SPM	4	12	0	0	which regions food production impacts are evident? Table SMP1 does not mention nothing. (Christiano de Campos, Petroleo Brasileiro SA)	Clarified wording is now used, and specific examples are more clearly overviewed within figure 2, a new figure. See Box 7-1 in chapter 7.
478	77265	SPM	4	12	4	0	Consider: Reverse order from High confidence to low confidence argument (Start with negative impacts on food security) (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	The paragraph has been substantially revised and now presents only 2 high confidence findings.
479	58827	SPM	4	12	4	12	We suggest rephrasing this line to "Effects of climate change on food security are evident in several regions. For example, evidence highlights that food production has already been affected in some countries (high agreement, medium evidence)." (Carlo Scaramella, World Food Programme)	Importantly, the finding pertains to food production, not food security, related yet distinct concepts.
480	68329	SPM	4	12	4	16	It might be useful to add a sub sentence on thisd paragraph about a sub-sentence addressing the likely economic effects and behavioural response of climate change-induced effects on food production. Paragraph 7.3.3. could be a good source for information on this. (NETHERLANDS)	Given page limits, this paragraph has been reduced in length rather than extended.
481	57780	SPM	4	12	4	19	What is the time frame for this statement? One is needed....months, years, decades, ? (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	Specific time frames for yield impacts are presented for quantitative data within figure 2, a new figure.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
482	61742	SPM	4	12	4	19	Again, it would be helpful to provide some examples or quantify the impacts in some way in this paragraph. Also, there needs to be better justification of the high-confidence statement that there are more negative impacts than positive ones. The sentences prior to this statement are too weak as justification. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Specific examples and quantified impacts are provided within figure 2, a new figure. The traceable account for the bold sentence can be found within the underlying chapter sections.
483	63898	SPM	4	12	4	19	Please provide examples for "several regions" (e.g. most vulnerable regions) - otherwise this statement is lacking in content, or refer to Table SPM.1. (GERMANY)	The phrase is no longer used.
484	66284	SPM	4	12	4	19	Anything to say about livestock production or horticulture? (Timothy Carter, Finnish Environment Institute)	The paragraph has been substantially reduced in length, not expanded, given page targets.
485	78266	SPM	4	12	4	19	Does the FAO have an index metric for tracking global food production? If the negative impacts of climate change are more common than positive impacts (line 15), then wouldn't we expect this metric to show a decrease, and if not then it is worth mentioning that non-climate factors predominate in shaping the current trend in global food production? I see projections (page 11, line 21), but not an assessment of recent/current balance of impacts on global yields. (Shane Easter, Carnegie Institution of Washington )	Quantitative yield impact data are now presented in figure 2, a new figure.
486	65881	SPM	4	13	0	0	It is suggested to replace "higher CO2" by "higher CO2 atmospheric concentration" (SPAIN)	This phrase is no longer included.
487	63305	SPM	4	13	4	13	The statement on higher yields in high latitudes given the "low confidence" attached to it. Could be deleted or have lesser prominence. (IRELAND)	Prominence has been reduced. Additionally, the focus is now placed on a high confidence formulation for this conclusion.
488	70239	SPM	4	13	4	15	The assessment here would seem to give that there is "high confidence" of the relation between two aspects on which one has low and medium confidence, respectively. Is this justified? (SWEDEN)	The revised finding is substantially clarified.
489	66283	SPM	4	15	4	15	Negative impacts on what have been more common (= more frequent or more geographically widespread?) than positive ones? Are these impacts on food production (= total volume of food) or productivity (production per unit area)? (Timothy Carter, Finnish Environment Institute)	Negative impacts of climate change on food production is now specified.
490	70964	SPM	4	15	4	15	What does 'overall' mean here ("Overall, negative impacts have been more common than positive ones")? The previous sentences say that in mid-high latitude regions, yields have increased, while they have decreased in mainly low-latitude regions. Does "overall" mean in terms of spatial area? Or is it in reference to the number of studies showing positive or negative impacts? Suggest clarifying. (CANADA)	The ambiguous word is no longer used.
491	78267	SPM	4	15	4	15	Frequency is gauged--negative impacts of climate change are more common than positive impacts--however, severity is not. It would be nice to know whether the severity of positive/negative impacts of climate change on food production are equivalent or if the severity of negative impacts is far greater than that of the positive impacts. (Shane Easter, Carnegie Institution of Washington )	Quantitative impacts on yield are now summarized in figure 2, a new figure.
492	61743	SPM	4	15	4	17	Is there a clear link to the literature for this statement? If so, it should be highlighted. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Yes, the traceable account for the finding can be found in the underlying chapter sections.
493	63306	SPM	4	15	4	17	Statement on food price variability should have a confidence level associated with it (IRELAND)	A sentence has been added to the box on calibrated uncertainty language (Box SPM.2) to clarify interpretation within a paragraph.
494	68330	SPM	4	15	4	17	We think this sentence is not very carefully worded. We propose to rephrase to: "Since AR4, there have been several periods of high food prices, demonstrating a high price sensitivity for small fluctuations in availability.". (NETHERLANDS)	Substantially clarified wording is now used.
495	62428	SPM	4	16	4	16	"demonstrating" to be replaced by "indicating" (INDIA)	"Indicated" is now used.
496	79153	SPM	4	16	4	16	Notes a partial sensitivity of markets to climate variability, could helpful cover what the other factors are, such as rapid population growth, political instability and geopolitical issues, to acknowledge that climate change is one of a number of risk multipliers as noted in the recent Chatham House report on Managing Famine Risk. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Sensitivity to climate extremes does not exclude sensitivity to other factors.

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497	68331	SPM	4	16	4	17	The sentence "Demonstrating ...variability." This claim is tenacious at best, and is insufficiently supported by the material presented in Chapter 7. The Chapter provides ample and convincing support for (mostly negative) influences of climate change on yield and provides some relevant projections of yield decreases in the future. However, there is hardly any evidence presented to support the claim that current climatic events are already influencing these prices. In contrast, figure 7-4 depicts a strong correlation with oil production and the resulting effects on biofuel demands, while the text on multiple locations extensively mentions other factors than climate change, such as (biofuel) policies, increasing demand for food and population size increases as important factors for food price increases. In the only study presented accounting for this proposed relationship already in the present (Lobell et al. 2011), this aspect is only touched upon very peripherally. The authors of the SPM are advised to rewrite this sentence. They should make the logical argument that supply decreases due to yield decreases (which are well supported) combined with demand increases due to population growth and changing food consumption patterns and other economical factors are likely to cause price increases. Disentangling climate change components in food prices is still an unresolved question and demonstrating the reactivity of markets to Climate change is complex as many economic (e.g. production and transaction costs, speculation, expectations) and social forces interplay in very dynamic conditions. Support can be found in Chapter 7, page 6 line-49 ff , page 10 line-14 ff, page 24-line 43 ff. (NETHERLANDS)	This finding, importantly, pertains to sensitivity to climate extremes, not making an assertion about sensitivity to climate change for these recent price increases.
498	66060	SPM	4	17	4	17	Please add before the sentence that starts with "Interactions among..." a sentence from TS page 13, row 39. "These recent prices changes cannot presently be attributed to climate change due to the presence of other drivers." (FINLAND)	Revised wording clarifies that the focus here is on sensitivity to climate extremes.
499	63899	SPM	4	17	4	18	It is not clear what is meant by "complex ways". A short description should be added which refers to the numeration (see bracket). We suggest: Instead of P 4 L 17-18, please insert: „There is emerging experimental and modeling evidence that interactions among production factors such as CO2 and ozone, mean temperature, extremes, water, and nitrogen can alter primary food production in complex ways (high agreement, medium evidence).” Source: TS P 13 L 48-50. (GERMANY)	This statement is no longer included in the summary for policy makers.
500	70965	SPM	4	17	4	18	This phrase could be deleted as it does not communicate useful information for a decision maker ("Interactions can alter primary food production in complex ways") (CANADA)	This statement is no longer included in the summary for policy makers.
501	79154	SPM	4	17	4	18	This sentence doesn't make much sense. Are 'Extremes' production factors? Surely the ways these interact are to either increase or decrease production, which isn't very complex. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is no longer included in the summary for policy makers.
502	76152	SPM	4	17	4	19	Text reads that interactions among production factors can alter primary food production in complex ways. By itself, this statement is not very helpful, but it could be made very meaningful with a discussion of this complexity and its implications. (UNITED STATES OF AMERICA)	This statement is no longer included in the summary for policy makers.
503	63900	SPM	4	20	0	0	Please add a para summarizing cc-impacts on urban areas (TS, P 14, L 14-42). (GERMANY)	Instead of expanding this section to include one paragraph on each sector assessed in chapters 3-13, the writing team has worked hard to shorten the section in accordance with page limits for the document.
504	76153	SPM	4	21	4	22	"Water is the delivering mechanism of climate change impacts to society society even sectors on energy, agriculture, and transport." This is a bold, but overly simplistic statement. I would have included the atmosphere, at minimum, as an additional vehicle by which climate change impacts reach society (weather, heat waves, air pollution, airborne disease, and so on). (UNITED STATES OF AMERICA)	This paragraph is no longer included in the summary for policymakers.
505	79797	SPM	4	21	4	23	Please consider rephrasing the sentence to: "Additional vulnerabilities to climate change are created by prevailing rural development constraints, such as low ...." (NORWAY)	This paragraph is no longer included in the summary for policymakers.
506	57378	SPM	4	21	4	25	Yes. Climate change adds to the many other stresses on people (esp in rural areas) who are already vulnerable. (Tony Weir, University of the South Pacific)	This paragraph is no longer included in the summary for policymakers.
507	63052	SPM	4	21	4	25	I suggest to include power imbalance (and/or social inequalities) as development constraints. (Christian Huggel, University of Zurich)	This paragraph is no longer included in the summary for policymakers.
508	63307	SPM	4	21	4	25	Much of this paragraph is relevant to both urban and rural communities. (IRELAND)	This paragraph is no longer included in the summary for policymakers.
509	66285	SPM	4	21	4	25	Another "vulnerability" statement that I would separate out from here. (Timothy Carter, Finnish Environment Institute)	This paragraph is no longer included in the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
510	67953	SPM	4	21	4	25	There is a possibility that more investment in agriculture can contribute to/lead to adverse impacts in climate change, if not appropriately done. Propose the following paragraph replace the current one: "Climate change in rural areas will take place in the context of many important economic, social and land-use trends(very high confidence). Prevailing development constraints, such as low levels of educational attainment, environmental degradation and gender inequality create additional vulnerabilities to climate change [9.4.4](high confidence)". (JAPAN)	This paragraph is no longer included in the summary for policymakers.
511	68332	SPM	4	21	4	25	This statement is true, but could be made easier to understand. We suggest to rephrase to: "Adaptation to climate change in rural areas is hindered by non-climate stresses (high confidence). Environmental degradation, underinvestment, poor education of farmers, gender inequality, and limited policy implementation increase vulnerability to climate change of rural communities, particularly in developing countries." (NETHERLANDS)	This paragraph is no longer included in the summary for policymakers.
512	70240	SPM	4	21	4	25	A better flow of thought could be obtained if this section were moved to after lines 39-43 on the same page. (SWEDEN)	This paragraph is no longer included in the summary for policymakers.
513	80483	SPM	4	21	4	25	[Ai Observed Impacts and Vulnerabilities] I suggest consideration of an analetical frameword for authors on defining indigenous populations as a "highly vulnerable population" that is added to the text, using three criteria: " given the complex relationship of indigenous peoples to land, variable degrees of migration, and of degree of adaptative capacity." I suggest adding, " a separate analytical framework is needed for the highly diverse global population of indigneous peoples". Note to the authors: I suggest an analytecial framework in the attached supporting document: Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry. See pages 1-2, and 8-10. (Gentry Blake, Institution no 1: Gente de litoi A.C., non-profit in Mexico. Dir. of Health Services.)	This paragraph is no longer included in the summary for policymakers.
514	79155	SPM	4	22	4	22	decision-makers rather than decisionmakers? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This paragraph is no longer included in the summary for policymakers.
515	63901	SPM	4	23	4	24	The link to climate change in this statement needs to be strengthened. (GERMANY)	This paragraph is no longer included in the summary for policymakers.
516	70966	SPM	4	23	4	24	Why is there a specific reference to developing countries? Rural people in developed countries are also subject to multiple non-climate stressors. Suggest clarifying. (CANADA)	This paragraph is no longer included in the summary for policymakers.
517	70595	SPM	4	24	0	0	"Land-policy problems" does not convey any meaningful information and could be slightly expanded with an example (NEW ZEALAND)	This paragraph is no longer included in the summary for policymakers.
518	63902	SPM	4	26	0	0	Missing a para summarizing cc-impacts on key economic sectors and services (TS, P15,L 36-55). (GERMANY)	Instead of expanding this section to include one paragraph on each sector assessed in Chapter 3-13, the writing team has worked hard to shorten the section in accordance with page limits for the documents.
519	62888	SPM	4	27	0	0	The word 'higher' is suggested to be added after 'likely contributed to'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	The current wording is most consistent with the underlying assessment.
520	77266	SPM	4	27	4	0	Include qualification of likelihood on order of climate change in existing health burden (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	The point being made in this comment is not fully clear.
521	57439	SPM	4	27	4	29	Make clear that 'health' refers to human health as opposed to ecosystem, habitat or some other parameter. (Alison Donnelly, Trinity College Dublin)	This point has been clarified.
522	63903	SPM	4	27	4	29	Sentence is too long and statement too complex: Maybe two shorter sentences with the same statements? (GERMANY)	The paragraph overall has been simplified, although the 2 related points being made in the 1st sentence have been retained within a single sentence.
523	70330	SPM	4	27	4	29	Again attribution issue. How can the climate change effect on health be likely when the contribution is still small and not well quantified. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The underlying chapter assessment supports the observed effect of climate change as summarized here.
524	65342	SPM	4	27	4	32	Reporting relatively low confidence of studies in AR5 without considering nor mentioning the difficulties of quantitative assessment for the complex mechanisms involved in health impacts from climate change as well as difficulties in health assessment, can lead to misunderstanding that climate change hardly has any impact on health or that there are insufficient evidences to prove its impact on health. (REPUBLIC OF KOREA)	The relevance of this comment is not fully clear, as the finding does assert an observed effect of climate change.
525	65374	SPM	4	27	4	32	Chapter 11.5.3.3 informs about the linkages between aeroallergens and climate change. Given the increasing significance of allergic diseases it is strongly suggested to inform about the most recent findings on this significant impact of climate change in the SPM. (Klaus Radunsky, Umweltbundesamt)	Given page targets, this paragraph has been reduced in length rather than extended.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
526	68334	SPM	4	27	4	32	In the current tekst it is hard to understand / unclear if climate change contributed to low or high levels of ill-health. Please consider the following Suggestion: In recent decades, climate change has likely contributed to increased ill-health though the present world-wide burden of ill-health from climate change is relatively small compared with other stressors on health and is not well quantified. (NETHERLANDS)	The current wording is most consistent with the point being made in the underlying chapter, asserting sensitivity to climate.
527	76154	SPM	4	27	4	32	P 4 lines 27-32. The evidence for this is poor and would benefit from a more balanced review of the topic. For contrary analysis of two disease, see: Rogers, D.J.,et al., The Global Spread of Malaria in a Future, Warmer World. SCIENCE, 2000. 289 p. 1763-1766; and Sumilo, D., Loreta Asokliene, Antra Bormane, Veera Vasilenko, Irina Golovljova, Sarah E. Randolph, Climate Change Cannot Explain the Upsurge of Tick-Borne Encephalitis in the Baltics. (UNITED STATES OF AMERICA)	The paragraph has been substantially revised to ensure focus on the most important and up-to-date conclusions on observed health effects.
528	77109	SPM	4	27	4	32	Perhaps reference disaster effects on health here. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	The paragraph has been shortened rather than expanded given page targets for the document.
529	77549	SPM	4	27	4	32	Make already here the point that indirect effects of climate change are likely to be the most import for human health. Currently the paragraph to me downplays the health risks due to climate change (Juha Pekkanen, National Institute for Health and Welfare)	Forward-looking information on risks is provided in section B for this topic.
530	68333	SPM	4	27	4	33	We think ill-health will be interpreted as caused by disease and not by accidents. We therefore propose to rephrase to: "In recent decades, climate change has likely contributed to weather-related casualties and loss of well-being. Changes in temperature, rainfall and sea-level have altered the distibution of vector-borne diseases, increased heat wave casualties , and reduced food production for vulnerable populations (medium confidence). Climate change exacerbates existing vulnerability to disease and accidents. The impact of climate change on health however is not well qualified and relatively small.". (NETHERLANDS)	The paragraph has been substantially revised to ensure focus on the most important and up-to-date conclusions on observed health effects. Climate-related health effects can be disease-related, or extreme-weather-related.
531	58946	SPM	4	28	4	28	delete "relatively" (Kevin Ronan, CQUniversity Australia)	In the current draft, this word has been retained to emphasize the comparison being made.
532	76155	SPM	4	28	4	28	"the present...burden...is small compared to other stressors"- this is a very wide generalization and should be qualified. There are many stressors to health that likely contribute far less than climate change has, although climate change impacts can be considered modest compared to major stressors like cigarette smoking or alcoholism. Suggest change to something like "compared to certain major stressors" or "compared to well-known major stressors". (UNITED STATES OF AMERICA)	In the current draft, wording has been maintained as insertion of adjectives would also be accompanied by ambiguities, without a full listing of examples.
533	78130	SPM	4	29	0	0	to which disease vectors are linked each indicator of temperature, rainfall and sea-level? Table SMP1 does not mention nothing. In particular the sea-level rise. (Christiano de Campos, Petroleo Brasileiro SA)	This statement has been deleted from the summary for policymakers.
534	70596	SPM	4	29	4	29	Consider than changes in wind may also be among the factors that have altered distribution of some disease vectors.' (NEW ZEALAND)	This statement has been deleted from the summary for policymakers.
535	70331	SPM	4	29	4	30	Is it really the changes in climatic conditions that have led to mentioned impacts? Or is this more related to climate extremes (e.g. 2003 heat wave in Europe is an example that might happen more often in the future, but this has less to do with observed changes in climate) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This statement has been deleted from the summary for policymakers.
536	76156	SPM	4	29	4	30	This sentence combines impacts of different certainty and severity as well as climate-related stressors that do not go with certain impacts. For example, changes in sea level are not relevant to heat wave casualties or the distribution of deer ticks, for example. Confidence levels should be different for heat wave casualties (relatively high) versus health outcome impacts of altered vector distributions (relatively low). Suggest editing sentence and providing confidence levels for each health outcome. (UNITED STATES OF AMERICA)	This statement has been deleted from the summary for policymakers.
537	79798	SPM	4	33	4	33	Consider to include the finding in TS page 14 line 21-22. (NORWAY)	The paragraph has been shortened rather than extended given page targets for the document.
538	62429	SPM	4	33	4	34	There is a mention of Alternative development which influence climatic risk, alternative development may be elaborated further. (INDIA)	It is not clear what this comment is referring to.
539	63308	SPM	4	34	4	34	Suggest replacing current BOLD text. With the text in TS pp7 lines 50-51 on the relationship between conflict and vulnerability to climate change, which is more accurate (IRELAND)	Clarified wording has been adopted for this finding.
540	70597	SPM	4	34	4	34	The bolded section is ambiguous... it implies that CC is NOT a major factor in contributing to resouce limitations and social unrest (NEW ZEALAND)	The findings presented here is one about vulnerability, not about impacts.
541	68335	SPM	4	34	4	35	It is difficult to depict from the heading what is in the body of the summary, as the issue is still been 'contested'. The report states that 'people living in places affected by violent conflict are particularly vulnerable to climate change' does not justify the generalisation due to the uncertainty (issue still under contention). (NETHERLANDS)	Improved logic of statements in the paragraph has been a focus in the revision.
542	59766	SPM	4	34	4	37	The first sentence seems to be contradicted by the second sentence. Please clarify. (AUSTRALIA)	The logic of statements in the paragraph has been improved in the revision.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
543	76157	SPM	4	34	4	37	This is not the strongest point to highlight from Chapter 12. Suggest addressing more explicitly the "threat multiplier" perspective, which has more data to back it up and is more in line with the findings of the SREX. (UNITED STATES OF AMERICA)	Substantially more material from Chapter 12 is presented in section B. Here, only information on vulnerability is included.
544	61744	SPM	4	34	4	43	The impact of climate change on society needs to be contrasted with the increased resilience gained from increased wealth. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This point is picked up somewhat now on page 3, line 39.
545	66286	SPM	4	34	4	43	... and two more "vulnerability" statements. (Timothy Carter, Finnish Environment Institute)	A separate subsection for vulnerability and exposure is now presented in section A-1.
546	77550	SPM	4	34	4	43	Due to the potentially major indirect health effects of climate change, also the rich people of the rich countries will suffer. It would be good to spell this out here (not least because the policy makers are rich) and not only concentrate on the poor. In this context, it would be extremely important to point out the possibilities for win-win decisions in the developing world (see Chapter 23 (europe) page 5, line 41-42) , especially the idea that changes in energy sector (reduction in fine particle emissions) and transport (bicycles and walking) benefit both public health and mitigate climate change (Juha Pekkanen, National Institute for Health and Welfare)	Forward-looking information on risks and co-benefits is provided in sections B and C.
547	77551	SPM	4	34	4	43	The text should be much more concrete to give guidance to policy makers for making good decisions. Effects of the environment on human health and also CO2 emissions will in the future largely depend , how we will build our cities. It would be extremely important to point out here that urban development is a VERY slow process and therefore changes and good decisions are required NOW. (Juha Pekkanen, National Institute for Health and Welfare)	Forward-looking information on risks and response is presented in sections B and C. However, prescriptions are not made.
548	65373	SPM	4	36	0	0	It is suggested to substitute "inconsistent" by "unstable". (Klaus Radunsky, Umweltbundesamt)	The word is no longer used.
549	68336	SPM	4	36	4	37	The SPM mentions an association between a series of factors (economic contraction, inconsistent state institutions, ...) and the incidence of civil wars, but does not clarify the nature of such association. In the body of the chapter (19.6.1.3.3.)it is explained that violent conflicts interfere with the establishment of successful governance systems, that in turn are necessary to reduce poverty and to support people facing the effects of climate change. Perhaps a sentence like the latter or a similar rephrasing could be used in the SPM to summarize the subject. (NETHERLANDS)	Substantially clarified wording within the paragraph has been adopted.
550	70241	SPM	4	36	4	37	This is unclear. Are inconsistent state institutions etc. sensitive to climate change? Robust evidence on this? (SWEDEN)	Substantially clarified wording within the paragraph has been adopted.
551	77367	SPM	4	37	4	37	"May I propose the replacement of ...with the incidence of civil wars. With ....incidences of civil wars." (UNITED REPUBLIC OF TANZANIA)	Substantially clarified wording within the paragraph has been adopted. The reference to civil wars has been removed.
552	63309	SPM	4	39	0	43	This section contains contentious statements, some without confidence assigned. Suggest "high agreement limited evidence" is not strong support for a "very high confidence" position. Also this paragraph could be readily included in the section SPM 4 21-25, where points are relevant to both urban and rural communities (IRELAND)	More nuanced wording is now used to ensure clarity and rigor of the conclusion.
553	70286	SPM	4	39	4	39	The phrase "... rural and urban..." begs the question what other categories of poor are there that do not feel this additional burden? (SWEDEN)	These adjectives are no longer used.
554	79156	SPM	4	39	4	39	Climate change consistutes A DISPROPORTIONATE burden for the rural and urban poor (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	"Additional" is still used, with clarifications achieved through more nuanced language in the rest of the statement.
555	79157	SPM	4	39	4	43	Would be helpful to flag here that migration (for the main part internal) is adding to the most vulnerable elements of urban populations; in particular the poorest tiers of society who are at highest risk of coastal flooding and who also lack access to social protection and other support systems (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Findings on migration are presented in section B.
556	80307	SPM	4	40	4	40	Suggest to reword to "extreme weather and climate event", following the SREX terminology (Gian-Kasper Plattner, IPCC WGI TSU)	"Climate-related hazards" is used for consistency with terminology presented in the introduction of the summary for policy makers.
557	63904	SPM	4	42	4	43	Please add confidence level. (GERMANY)	A sentence has been added to the box on calibrated uncertainty language to clarify interpretation within a paragraph.
558	79158	SPM	4	42	4	43	Isn't the point that more affluent people are more resilient? Not necessarily more about 'take advantage' of shocks and crises. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is no longer included in the summary for policymakers.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
559	70242	SPM	4	43	4	43	Is this a relative (better than the poor? How do the latter take advantage of shocks and crises?) or an absolute statement (the affluent benefit from shocks and crises?). The wording "... take advantage of ..." is provocative. More neutral alternative would be endure, sustain, withstand, or some similar (SWEDEN)	This statement has been deleted from the summary for policymakers.
560	79159	SPM	4	43	4	43	.. Can better absorb shocks and crises.. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement has been deleted from the summary for policymakers.
561	70967	SPM	4	43	4	54	If the terms "power status" and "power" are retained they should be defined in the glossary. Note that an important distinction among many definitions of power is that of "power-over" versus "power-to". (CANADA)	This statement has been deleted from the summary for policymakers.
562	68250	SPM	4	45	0	0	Insert Box on: 'Social Dimension of Climate change' (Social Dimension of Climate Change, Discussion Draft: FAO, ILO, IOM, ITU, OHCHR, UNAIDS, UNDESA, UNDP, UNESCO, UNFPA, UN-HABITAT, UNICEF, UNITAR, UNISDR, UNRISD, UNU, UN Women, WB, WFP and WHO 2011). Climate change increases the risk of acute events like storms, droughts and floods, cyclical changes in precipitation, or long-term changes in temperature and sea levels. How do these trends impacts people and societies? Most of the IPCC's fourth assessments report focus on environmental and hard infrastructure impacts. However, climate change potentially affects a much wider range of sustainable development issues – such as health, food security, employment, incomes and livelihoods, gender equality, education, housing, poverty and mobility – either directly or indirectly. The United Nations Framework Convention on Climate Change (UNFCCC) states that “Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.” It moreover entrusts Parties to take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions. The current climate change discourse – including the way mitigation and adaptation measures are designed and appraised – tends to emphasize environmental, economic or technological inputs and costs. The social dimensions of climate change are not well understood or addressed. As a result, current policy responses may not fully address the negative impacts nor do they take full advantage of potential opportunities to reach a number of sustainable development goals (United Nations Framework Convention on Climate Change. New York, United Nations'Article 1 of the UNFCCC refers to “adverse effects of climate change”, including effects on “the operation of socio-economic systems or on human health and welfare.” However, both vulnerability to climate change hazards and the impacts of those hazards on people, communities and social systems are not yet fully understood. In 2008, cyclone Nargis struck Myanmar and claimed nearly 140 000 lives. In the same year, Cuba was affected by four devastating storms, among them the most devastating hurricane in 50 years. Very few lives were lost (United Nations Office for the Coordination of Humanitarian Affairs. Natural Disaster Bulletin, 2008 (Nov), Number 9.) Differences in impact of climate-related hazards on peoples’ health, lives and livelihoods are determined by their varying levels of vulnerability. In its fourth assessment report the IPCC recognizes that vulnerability and the potential impacts of climate change are determined by the exposure, sensitivity and adaptive capacity of people and societies. However, it noted shortcomings in its definition of vulnerability, particularly in its lack of consideration of ‘social vulnerability’, the need to address the determinants of adaptive capacity, and the need to consider human development as an essential mediator of climate vulnerability. people most vulnerable to climate change are usually poor, undernourished, of poor health, live in precarious housing conditions, farm on degraded lands, have low levels of education, lack rights, have little opportunities to influence decision making, work under precarious conditions, and/or reside in countries and regions with non-resilient health systems, limited resources and sometimes poor governance systems. Social, cultural or political circumstances, often including inequalities and discriminatory practices, deprive them of the basic assets and entitlements and the institutional support needed to make a living and ensure their well-being even under normal conditions, let alone for mastering the increased and additional challenges posed by climate change. These non-climatic factors and the socioeconomic context in which climatic problems occur is likely to be as important, if not more so, than climate-related hazards themselves (Eriksen SEH et al. Climate Change Adaptation and Poverty Reduction: Key Interactions and Critical Measures. Oslo, University of Oslo, 2007).’ (Marek Harsdorff, ILO)	The section importantly focuses on the most important and up-to-date conclusions from the underlying assessment.
563	63310	SPM	4	47	5	7	Consider deletion of SPM Box 3. This central diagram is very complex and it is unclear what the authors wish to communicate to Policymakers with its inclusion. The caption and associated text do not help to clarify the message (IRELAND)	The figure has been removed from the summary for policymakers, and clarity of language within the box has been improved.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
564	66105	SPM	4	49	0	0	In my opinion, the timeframe of the adverse impacts of climate change is an essential factor here. With the current level of GHG emissions, and with a timeframe of +50 years, it is likely that most people, not only the most marginalized, will be at risk from adverse impacts of cc. In my opinion, it would also be important to deliver the message that climate change impacts concern everyone, and that there are no safe havens, especially at the end of the century, with current level of emissions and weak mitigation efforts. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	This section focuses on the observed vulnerability, exposure, and impacts, not on future risks.
565	56321	SPM	4	49	4	50	I suggest deleting "and climate change responses." from Line 50 (Paul WOODS, World Vision)	This phrase is important to the underlying assessment and its conclusions and thus has been retained.
566	66061	SPM	4	49	4	50	We propose to rephrase the first sentence of the paragraph by adding "...and discriminated against" to the sentence. The sentence would then read as: "People who are socially, economically, culturally, politically, or institutionally marginalized and discriminated against are typically most at risk from ..." The point would be that even though the exclusion wouldn't be intentional, it would count as discrimination if practices or rules result to such a situation where different population groups have different social standings or enjoy different benefits/conditions/rights. (FINLAND)	The revised wording is most consistent with the underlying assessment and its conclusions, and discrimination has been referred to later within the box.
567	59767	SPM	4	49	4	55	Concepts of social connectivity and social capacity are also relevant here and should be added. (AUSTRALIA)	While reference to social processes is provided, revision has focused on keeping the text as concise as possible.
568	63905	SPM	4	49	4	55	Please add the following statement that depicts the relevance of context-specific interactions on different vulnerability or adaptive capacity: "Few studies depict the full spectrum of these differences and the ways in which they interact to shape resilience or vulnerability, and thus attribution remains a challenge. Since inequality is not just a consequence of climate change, but also a key cause and amplifier of its impacts, inequality-sensitive analyses are needed for effective and efficient adaptation." Source: TS P 7 L 5-8. (GERMANY)	The final sentence included in the box makes reference to this point.
569	68337	SPM	4	49	4	55	when reading the text, it seems vague. Please consider making it more concrete. (NETHERLANDS)	Many concrete examples are provided in the technical summary, with conciseness emphasized here in the summary for policymakers.
570	68338	SPM	4	49	4	55	In this statement an important aspect seems to be missing, namely that marginalized people in rural areas depend on local ecosystem services and cannot, like a marginalized urban population, fall back on resources from an unaffected area (NETHERLANDS)	Specific examples are provided in the technical summary, but presentation in the summary for policymakers focuses on conciseness.
571	79160	SPM	4	49	4	55	This description box feels overly academic in terms of language - can the point be put across in plainer English? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The language of the box has been clarified, with more accessible examples presented at length in the technical summary.
572	65882	SPM	4	50	0	0	It is suggested to delete "and climate change responses", as the WGII focus is the assessment of Impacts, Vulnerability and Adaptation to CC, and not the response measures (SPAIN)	It is within the mandate of working group to to assess adaptive responses and also interactions among different types of stressors and responses.
573	70332	SPM	4	50	4	50	Unclear what is meant by 'climate responses'? Are these mitigation and adaptation actions? (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Yes, both mitigation and adaptation actions are under the scope of this term, consistent with usage throughout the summary for policy makers.
574	66062	SPM	4	50	4	51	We propose to rephrase the sentence that starts with "Such heightened vulnerability..." by adding "inter alia" to the sentence and by changing (dis)ability to disability. After this the sentence would read as: "Such heightened vulnerability is related not only to income and assets but also inter alia to gender, class, race ethnicity, age and disability..." The point of adding "inter alia" is to make clear that it is not a complete list but a list of examples. (FINLAND)	"for example" has been added to address this point.
575	62672	SPM	4	51	4	51	It is not easy for readers to distinguish the differences between race and ethnicity in Box SPM.3. (RONGSHUO CAI, Third Institute of Oceanography)	Only ethnicity is referred to now.
576	77528	SPM	4	51	4	51	Do not use the word "race" (SWITZERLAND)	The text has been revised accordingly.
577	70333	SPM	4	51	4	52	the mentioned relationship between income and vulnerability is that always the case. It is supported by chapter 13, but section 8.1.4.1, pg 14, line 13-14 indicates something different. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The statement has been substantially clarified.
578	70243	SPM	4	52	4	52	"voice" sounds a bit cryptic. Would there be a better expression for the kind of influence (possibility to get heard?) that may be meant here. (SWEDEN)	Voice is no longer referred to.
579	70598	SPM	4	52	4	53	This sentence is unclear - it is not language suitable for the summary for policymakers. (NEW ZEALAND)	Wording has been substantially revised.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
580	66063	SPM	4	52	4	54	We propose to rephrase the sentence by adding the words marked here in capital letters. The sentence would read as: "Other dimensions include resource access, location, legal systems, PREVAILING PRACTICES, CUSTOMS, and voice." The point of the addition is that also these aspects can lead to discrimination and inequality. (FINLAND)	This list has been deleted.
581	68339	SPM	4	52	4	55	It would be helpful if a distinction was made between adaptation capacity and adaptive capacity. The first one is the broad term – the capacity to adapt to climate change. The adaptation itself can be done in different ways. It can be done by choosing measures that protect a region with giant structures against events that may – and may not – take place at the end of the century. It can also be done in an adaptive way – implementing long term strategies that are flexible; that can be adjusted corresponding to the actual speed of the changing climate. (NETHERLANDS)	Please see the glossary for definition of "adaptive capacity" as used in this report. And phrasing has been clarified and broadened within the box.
582	63906	SPM	4	53	4	53	"after..., and communities" add: "..., societies" before "..requires attention to multidimensional inequality." (GERMANY)	The 3 nouns used best reflect the appropriate scales intended for the finding.
583	63311	SPM	4	53	4	55	The last two sentences of this paragraph are difficult to understand, too much jargon. Please express in clearer language (IRELAND)	Wording has been substantially clarified.
584	70287	SPM	4	54	4	55	This sentence is difficult to understand. Rephrase. (SWEDEN)	Wording has been substantially clarified.
585	70968	SPM	4	54	4	55	Suggest deleting final sentence of Box SPM.3 or reformulate in a way that will be relevant to decision-makers. (CANADA)	Wording has been substantially clarified, and relevance emphasized.
586	68340	SPM	4	55	4	55	Explain what is meant with the term 'differential vulnerability'. (NETHERLANDS)	Clarified phrasing is now used.
587	62430	SPM	5	0	5	0	Section A.ii.: Examples from south Asia exist, may be considered for inclusion (INDIA)	Examples are now presented for each region.
588	65886	SPM	5	0	6	0	Section A.ii.- Many paragraphs seem to be no objective assessments but subjective opinions or even policy recommendations, with very general and obvious sentences that can contribute poorly to the decision maker process (SPAIN)	More focused treatment of the most up-to-date, important conclusions has been addressed as a priority in the revision.
589	70288	SPM	5	1	5	1	There are no clear "axes" in this illustration; "dimensions" would be a better word to describe the two factors inequality and the adaptive capacity. (SWEDEN)	The figure has been deleted from the summary for policy makers.
590	63312	SPM	5	1	5	4	Box SPM 3 Figure 1 is not useful. It is difficult to understand the message which the authors are trying to convey to policymakers. The caption and associated text do not help to clarify the message. (IRELAND)	The figure has been deleted from the summary for policy makers.
591	70334	SPM	5	1	5	4	Box SPM3 Figure 1 is very unclear. The statement on pg 4 I49-51 is clear, but how does this figure 1 helps in this. (i) is equatity not part of adaptive capacity (marginalized people are more vulnerbale); (ii) is 'resilient'really the opposite of vulnerable; (iii) what are uneven development pathways; (iv) I would remove 'uneven' in the top, as pwever structure in general determine the inequality; (v) how come exposire and response into thi (exposure is one of the determinants of adaptive capacity) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The figure has been deleted from the summary for policy makers.
592	70969	SPM	5	1	5	4	Recommend deleting this figure (Box SPM.3 Figure 1) It can be more easily captured in words in Box SPM.3. Suggest that Figure SPM 1 should be the first figure encountered in the report as it provides a useful framing for entire SPM. (CANADA)	This figure has been deleted from the summary for policy makers.
593	70935	SPM	5	2	5	4	A potentially interesting figure, but I don't think it is clear what it is meant to show. I think more explanation is needed. The figure itself could perhaps also be improved; as it is now there are many forcers, factors and arrows operating and I find it difficult to catch the main message. (Fuglestvedt Jan, CICERO)	The figure has been deleted from the summary for policymakers.
594	70599	SPM	5	3	5	3	The meaning of "people's multiple identities" is unclear (NEW ZEALAND)	The figure has been deleted from the summary for policymakers.
595	61745	SPM	5	5	0	56	add confidence statements (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Calibrated uncertainty language is used for assessment findings on this page.
596	61746	SPM	5	8	6	5	Somewhere in this section it should point out that we can only adapt so much and that there are limits - in extreme cases, it might be necessary to abandon a city, for example. Even moderate amounts of warming (e.g. 2degC) might be very difficult to adapt to. This section implies we understand all the impacts which is not the case. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Future risks and limits to adaptation are addressed in sections B and C.
597	66006	SPM	5	8	6	10	I wonder whether there is no bullet point for South America. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	Material is now presented for all regions.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
598	66007	SPM	5	8	6	10	I see no deeper differences in the barriers/constraints mentioned for the different geographical areas. It might be more appropriate to organize them not along the continents, but along the constraining mechanisms. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	The framing for specific examples presented has been clarified.
599	63907	SPM	5	8	6	20	Section A.ii. is on HUMAN adaptation experience - this should be clarified in its title. (GERMANY)	The focus of this section is clarified in its 1st sentence.
600	65885	SPM	5	10	0	0	Same comment that above on human and natural systems (SPAIN)	The focus of the section is clarified now in its 1st sentence. Throughout the SPM, the interlinked nature of human and natural systems is emphasized where relevant to findings.
601	61747	SPM	5	10	5	10	"Natural systems have some potential to adapt" - this statement seems to be at odds with paragraph on p.9, line 55 to p.10, line 3 on tipping points which states that large and abrupt changes could occur. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been deleted.
602	62673	SPM	5	10	5	10	How could the systems respond to "climate"? They could only respond to "climate change". (RONGSHUO CAI, Third Institute of Oceanography)	This sentence is no longer included here.
603	70708	SPM	5	10	5	10	The wording "Natural systems have some potential to adapt" suggests that all systems have an adaptation potential. This is probably not always the case. Please check this. We suggest a wording such as "Some natural systems have an adaptation potential", or any other wording that would clarify that the adaptation potential is (very) small (if not already exceeded ?) for some systems, while it can be substantial for some other. (BELGIUM)	This sentence has been deleted from the summary for policymakers.
604	77368	SPM	5	10	5	10	"for consistency I would like to propose the use of the word impact instead of effect" (UNITED REPUBLIC OF TANZANIA)	This sentence has been deleted from the summary for policymakers.
605	70335	SPM	5	10	5	14	Regarding the mentioned differences between human and natural systems, it is important to mention the the latter response if only to actual climate. Human systems areas respond to possible future climate. But nature does not have the capability of anticipating. (=difference between planned and endogenous adaptation). (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	For clarity, only human responses are referred to in this paragraph now.
606	85186	SPM	5	10	5	14	Not exactly a new discovery or fresh opinion (Vincent Gray, Climate Consultant)	This introductory text serves to orient the reader rather than present assessment conclusions.
607	79161	SPM	5	12	5	12	Discussion of natural adaptation and human intervention would benefit from some case studies. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This introductory text now focuses on human responses for clarity.
608	63313	SPM	5	12	5	19	The sentence " Overall, negative impacts..... positive ones. " contains the key message of this paragraph. Edit to give greater prominence to this message. (IRELAND)	This comment is misplaced. But the intended paragraph has been revised accordingly.
609	63908	SPM	5	13	5	14	Some crucial factors for motivating adaptation strategies or measures are listed, but the idea of climate resilience as a long-term objective is still missing. We suggest to add (in Executive Summary of Ch. 14 P 2 L 46; TS P 48 L 13 and SPM P 5 L 14): "For example, in a development context resilience evokes positive and broad development goals (e.g., education, livelihood improvements, food security), includes multiple scales (temporal and spatial) and objectives, better captures the complex interactions between human societies and their environments, and emphasizes learning and feedbacks' (Moss et al, to appear)." Source: Chapter 14, P 20 L 45-48. (GERMANY)	This text has been reduced to more clearly provide introductory orientation rather than assessment findings.
610	60509	SPM	5	14	0	0	Should you mention that success of adaptation policies will come, in particular, from better adapted and more resilient energy policies (Hélène CONNOR LAJAMBE, HELIO International)	This sentence provides introductory context rather than assessment conclusions, and thus it has not been amended accordingly.
611	77369	SPM	5	14	5	14	" May I propose to replace ....current climate with .....current climate variability " (UNITED REPUBLIC OF TANZANIA)	This phrase is no longer included.
612	79162	SPM	5	14	5	14	suggest 'such as reducing the existing risks associated with the current climate.' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This phrase is no longer included.
613	63314	SPM	5	16	0	0	Consider removal of statement on markets. (IRELAND)	It is not clear what this comment is referring to.
614	76159	SPM	5	16	5	0	SPM p5 I16: references to 14.3.4. and 14.4.2 do not support the summary claim that adaptation planning is transitioning to construction of responses because the sentences in those sections are not specific to actual construction, and contradicts the specific findings below starting at I27; nor the summary claim in the ch14 exec summ, p3 I5. (UNITED STATES OF AMERICA)	This statement is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
615	66001	SPM	5	16	5	18	I would add that the progress in adaptation policy is quite heterogeneous accross countries, sectors and regions. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	The diversity of regional experience at various scales is now better emphasized through the examples provided in this section.
616	76158	SPM	5	16	5	18	References to chapter sections: 14.3.4, 14.4.2 are not correct (UNITED STATES OF AMERICA)	Chapter references have been revised throughout this section.
617	79799	SPM	5	16	5	18	This message is good news - that adaptation is taking place. Does this apply to all regions? It would have been useful if this could be specified. Please also clarify the last sentence, as it stands now it may be interpreted as a definition of what "adapt (NORWAY)	Examples across all regions are now provided in this section.
618	85187	SPM	5	16	5	18	Largely caused by your influencee (Vincent Gray, Climate Consultant)	The underlying chapter sections cited for the revised conclusions provide the literature basis in support of the statements.
619	63315	SPM	5	17	0	0	delete "a phase of". Suggest the sentence should read " Adaptation planning is moving from awareness to response" (IRELAND)	The sentence has been deleted.
620	63909	SPM	5	17	5	18	Please clarify what is meant by "construction of responses in societies"; it could be a political process (development of an adaptation strategy), or social processes (e.g., individual adaptation measures on the level of households), or constructive measures (e.g., dikes). (GERMANY)	The phrase has been deleted.
621	79163	SPM	5	17	5	18	to the implementation of effective measures in societies.' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	A new statement on commonly implemented responses has been added.
622	63910	SPM	5	18	5	18	It should be added: It is not clear yet whether the observed adjustments and changes to perceived climate risks represent evidence of a societal shift towards a well-adapting society (taken from Chapter 15, executive summary, P 2, L46/47) Evaluation of adaptation effectiveness is still in its infancy and the demand for metrics to measure adaptation needs and effectiveness is increasing (see Chapter 15, executive summary, P 3, L17-23 as well as TS P 19, L15-20). (GERMANY)	A finding on adaptation evaluations makes a related point, with expanded treatment in the technical summary.
623	64886	SPM	5	18	5	18	The address of community level adaptation particularly in developing countries needs to be strenthened. (Md Younus, Lecturer, School of the Environment, Flinders University, Research Fellow, Adelaide University, South Australia)	Examples provided for all regions further address this point.
624	66106	SPM	5	20	0	0	In this paragraph it is stated that in most cases awareness of changing risks has not been translated into adjustments of activities or risk management planning. The statement seems credible. However, to facilitate integration of adaptation into decision-making, in this paragraph "more of the same medicine" is offered: namely more information, albeit tailored. In my opinion, to accomplish real action and changes on the ground, behaviour and systemic changes - transformations - are needed. It would be important to stress this in the SPM as merely providing more information will clearly not be enough. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
625	65599	SPM	5	20	5	0	Suggest "does not usually lead to effective action" (David Flint, Cass Business School)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
626	59769	SPM	5	20	5	20	Expansion on the reasoning behind the comment of 'awareness of climate risks does not always lead to action' would be useful. Some expansion on the foundations behind this claim would drive the argument further. This would form a comprehensive and flowing argument with the comment at Page 5, Line 49, where it notes that 'adaptation is already occurring and adaptation planning is becoming embedded in planning processes, mostly at the conceptual rather than implementation level'. The notion of climate change seems to carry a conceptual acceptance within the policymaking arena, however it is much more difficult to implement climate change adaptation into policy. (AUSTRALIA)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
627	57379	SPM	5	20	5	25	Yes. Awareness raising on its own is not enough. Adaptation requires specific action and seed funding to enable it, esp in developing countries. It is no use a high-paid consultant or governmetn official telling a poor village that they are vulnerable without providing techncial and (a little) financial assistance to do something about it. In any case the villagers are already well aware that they are vulnerable to climate extremes. (Tony Weir, University of the South Pacific)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1. Indeed, awareness is necessary but not sufficient.
628	63911	SPM	5	20	5	25	If the key message of this para is that adaptation is not sufficient, then this should be brought out more clearly. Furthermore, it should be pointed out that a lack of action is not only due to a lack of information or inadequate information for decision-making but also due to a lack of capacities and/or resource constraints (examples of constraints are presented in Chapter 16.3). Other reasons presented in chapter 16.5.2 are the "mismatch between national adaptation planning and ... local implementation" and the "temporal disconnect" (Ch 16.5.2 P 21 L 53 to P 22 L 17). (GERMANY)	An extended paragraph on specific constraints is now included in section C-1. Limits to adaptation are addressed in sections B-3 and C-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
629	79164	SPM	5	20	5	25	This paragraph appears to assume that awareness of a risk will lead to action to manage that risk. The paragraph would benefit from some words recognising that awareness of risk should not assume that decision makers will choose to take action to manage that risk. It is an entirely legitimate decision to tolerate the existing risk. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Findings related to this point are presented in section A-3 and C-1. Indeed, awareness is necessary but not sufficient.
630	70970	SPM	5	22	0	23	The words "in most cases" implies that there has been some successful cases in this area - is this so? If so, are there findings among the successes that would be relevant to policymakers? (CANADA)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
631	65647	SPM	5	22	5	22	Delete "However" to give more punch to the statement. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
632	70336	SPM	5	22	5	23	In section 14.5.3 (pg 18 three main reasons are given for this lack of adjustments (scale difference, problem ownership and lack of policy integration). It is worthwhile to mention these also in teh SPM a an explanation of the current statement (=now unclear) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This specific statement is no longer included, but findings related to this point are presented in section A-3 and C-1.
633	70971	SPM	5	23	0	25	The use of the word "may" here leaves the sentence quite vague and uncertain. Consider rewording more concretely, while also ensuring policy neutrality (e.g., "To better integrate awareness of climate risks with risk management planning, assessments would need to be linked..."). (CANADA)	A clearer paragraph on effective decision support is now presented in section A-3.
634	63316	SPM	5	23	5	25	Suggest deletion of sentences from "However, in most cases..." to "...decisionmaking process", as it does not add much to the discussion, and there is not confidence assigned to the statements (IRELAND)	The sentences are no longer included here.
635	76160	SPM	5	23	6	20	This passage would benefit from restructuring. It discusses two categories of detection and attribution: attributing a change in a phenomenon, and attributing a change in the probability of occurrence of an event. A pair of sub headers to this effect might be useful. (UNITED STATES OF AMERICA)	It is not clear what this comment is referring to.
636	60510	SPM	5	25	0	0	You may wish to mention more clearly the need for more participatory governance to improve decision and trigger political will. (Hélène CONNOR LAJAMBE, HELIO International)	This section focuses on observed adaptation experience, rather than forward-looking principles.
637	79165	SPM	5	25	5	25	decision-making' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This change has been made throughout the document.
638	66134	SPM	5	27	0	0	Not an exact parallel between Table 2 and text: More logical to have Table carry one illustration from each region (call mangroves= Asia; and add L. Amer and N. Amer); and for bullets in text to summarise each of these. At present the table has bullet point on N Amer, but no illustration of this in Table. (Martin Parry, Imperial College)	The table is no longer included in the summary for policymakers.
639	65648	SPM	5	27	5	27	Avoid adjectival nouns "Adaptational experience" is better than "adaptation experience". An alternative would be "experience of adaptation". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The current wording is preferred, as it is the clearest given the intended meaning.
640	62431	SPM	5	27	5	28	Do the adaptation experiences listed as several bullets correspond to current climate variability and current climate risks - We presume so - Request clarity on this. (INDIA)	The opening introductory statement at the start of this section clarifies scope.
641	66002	SPM	5	27	5	28	I would write 'constraints, barriers and opportunities' instead of 'constraints and oportunities', as many use the term 'barrier', yet with a close relation to 'constraints'. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	The phrasing has been substantially revised with these terms deleted.
642	68341	SPM	5	27	5	28	This is not a conclusion, and we suggest to delete this sentence because the following bulleted list can stand as separate conclusions. (NETHERLANDS)	A conclusion is now used to open the list of examples.
643	77529	SPM	5	27	5	28	A factual message could be delivered in this chapeau starting the sentence as follows: "Adaptation is already occurring in all continents and the diversity ..." (SWITZERLAND)	A finding now opens the list of examples.
644	63317	SPM	5	27	5	29	Give greater prominence to the key message by editing first line, also include "premature mortality" as an indicator of adverse impact. Suggest: "Climate change, over recent decades, has likely contributed to levels of ill health and premature mortality". The rest of the sentence is over-wordy and unnecessary. (IRELAND)	The comment is misplaced, but the health impacts statement in the preceding section (A-1) has been maintained to most accurately reflect the underlying chapter assessment.
645	79167	SPM	5	27	5	57	It would be good to include here some 'best practice' examples of what countries are doing to increase their adaptive capacity (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Principles for effective adaptation are now presented in section C. Examples of adaptation experience represented for all regions in this section, but not at a country by country level.
646	61748	SPM	5	27	6	10	It is not clear why several world regions (e.g. Asia) are not mentioned at all in this regional overview. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Examples from all regions are now presented.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
647	62432	SPM	5	27	6	10	There is no discussion of Asia here. It would seem to be a substantial omission. Are the data unavailable? (INDIA)	Examples from all regions are now presented.
648	63912	SPM	5	27	6	10	The enlistment of adaptation experience should show examples from all geographic regions. Please add examples from Asia (Chapter 24.4 and 24.5), Central & South America (Chapter 27.3), and Small Island States (Chapter 29.6.2) presented in the regional chapters. (GERMANY)	Examples from all regions are now presented.
649	67954	SPM	5	27	6	10	A description about the situation in Asia is conspicuously missing in the section with the heading starting with "The diversity of adaptation experience". Recommend descriptions from Asia are added so as to give regional balance to SPM. (JAPAN)	Examples from all regions are now presented.
650	68153	SPM	5	27	6	10	Table SPM.2 lists no adaptation practice arising from Asia. Considering the fact that Asia is vulnerable to climate change, it is suggested to add Asian cases on adaptation practice taking into account relevant chapters, such as Chapter 24. (CHINA)	The table no longer occurs in the summary for policy makers.
651	70337	SPM	5	27	6	10	How are the geographical examples given in the bullets related to the more general/sectoral examples in Tabel SPM2? To my feeling this relationship is now very limited and should become more explicit. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The table no longer occurs in the summary for policymakers.
652	77530	SPM	5	27	6	10	It seems that in this list the South American continent is not mentioned (SWITZERLAND)	Examples for all regions are now presented.
653	79166	SPM	5	27	6	10	Why is there nothing here on impacts in Asia or South America? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Examples for all regions are now presented.
654	79800	SPM	5	27	6	10	What about examples from Asia as well as Central and South America? (NORWAY)	Examples for all regions are now presented.
655	80308	SPM	5	29	5	29	"urban climate risk" -- It's not quite clear what you are referring to here. Is it the risk from climate change in urban areas. Or the risk from changes in climate due to urbanization? Please clarify. (Gian-Kasper Plattner, IPCC WGI TSU)	This paragraph has been deleted.
656	59770	SPM	5	29	5	31	It would be much more useful to state which cities are the exceptions here. (AUSTRALIA)	This paragraph has been deleted.
657	65377	SPM	5	29	5	39	It is suggested to move the first two bullet points above the chapeau that addresses adaptation experience in specific geographic contexts as those findings are also more generic and are valid for some regions. (Klaus Radunsky, Umweltbundesamt)	These paragraphs have been deleted.
658	58061	SPM	5	29	6	10	No information about what is happening in Latin America or the Caribbean is provided (Carmen Lacambra Segura, Grupo La era)	Examples for all regions are now provided.
659	68342	SPM	5	30	5	30	"..handful of cities": please add some examples. (NETHERLANDS)	This paragraph is no longer included.
660	68343	SPM	5	30	5	30	In the SPM it is written that "responses are weak except for a handful of cities largely in high-income countries". However, in the TS, page 20, lines 2-4 it says "the capacity to integrate climate risk, disaster risk reduction, and urban infrastructure and planning is being slowly built in some parts of the world". The second statement does not specify where these parts of the world are, or whether we are talking about cities or countries, or regions. (NETHERLANDS)	This paragraph is no longer included.
661	68344	SPM	5	31	5	31	The process has been modelled in existing literature and coined as "learning alliances" concerning the development of interpretation among stakeholders (understand why they need to engage with adaptation) and "learning active alliances" concerning developing intervention with stakeholders (initiate measures). Ashley, R., Blanskby, J., Newman, R., Gersonius, B., Poole, A., Lindley, G., Smith, S., Ogden, S., Nowell, R., 2012. Learning and action alliances to build capacity for flood resilience. Journal of Flood Risk Management 5, 14 - 22. Van Herk, S., Zevenbergen, C., Ashley, R., Rijke, J., 2011. Learning and Action Alliances for the integration of flood risk management into urban planning: a new framework from empirical evidence from The Netherlands. Environmental Science & Policy 14, 543 - 554. (NETHERLANDS)	This paragraph is no longer included.
662	63913	SPM	5	34	5	35	The sentence "City-based disaster risk reduction ..." should be the first sentence of this bullet point (-> L 29). For example, the World Mayors Council on Climate Change is an existing network with focus on mitigation and links to adaptation as well as disaster risk reduction. (GERMANY)	This paragraph is no longer included.
663	65600	SPM	5	36	5	0	This is unclear. Does it mean 'women are less able to respond than men due to lack of information and access to credit'? Let's not assume our readers will guess this. (David Flint, Cass Business School)	This paragraph is no longer included.
664	63318	SPM	5	36	5	36	The word "Gender" is not self explanatory in this context. Please expand is it gender equity, the role of women in specific societies, etc.? (IRELAND)	This paragraph is no longer included.
665	68345	SPM	5	36	5	37	"Gender" is kind of odd in this listing. Perhaps "gender equality" or "influence of women on decision making" would work better. (NETHERLANDS)	This paragraph is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
666	59771	SPM	5	36	5	39	What is the gender link here? Is it specific to social circumstances including income levels and social support networks? This should be clarified (AUSTRALIA)	This paragraph is no longer included.
667	66003	SPM	5	38	5	38	It is to my opinion highly controversial, whether a lack of markets generally is a crucial barrier to adaptation. This strongly depends on the conditions. It is more appropriate to delete 'markets' from this sentence. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	This paragraph is no longer included.
668	62433	SPM	5	40	5	43	India has been implementing some of the largest adaptation programmes in the world and several papers have been published on this. Examples are; Mahatma Gandhi National Rural Employment Guarantee Scheme (Tiwari et al., 2011, Economic and Political Weekly), watershed programmes, national afforestation programme, etc. (INDIA)	Examples are now provided for all regions, but not at the country level.
669	64333	SPM	5	40	5	43	The relationship between national-scale governance in line 40 and local-scale efforts on line 43 is not clear. (Don Lemmen, Canada National Study)	The revised wording clarifies this relationship.
670	68346	SPM	5	40	5	43	The SPM refers to "many African countries" while both TS (page 20, Line 23) and Executive Summary of Chapter 22 (page 4, Line 33) refer to "in all regions of Africa or the continent". Please consider consistency whether they refer to many African countries or in all regions of Africa or the continent. (NETHERLANDS)	Clarity and consistency have been substantially improved for this statement.
671	76161	SPM	5	40	5	43	It seems strange that "national governments" are credited with the initiation of adaptional systems, while the text concludes that such systems are "confined to local scales". (UNITED STATES OF AMERICA)	Clarity across the paragraph has been substantially improved.
672	76162	SPM	5	40	5	43	This would seem to be a good place to including high level findings from Chapter 7 - food security. (UNITED STATES OF AMERICA)	The list of examples has been revised to present only regional examples.
673	79801	SPM	5	40	6	10	This is very useful information about adaptation in the various regions. It would have been even more useful if more of the same factors was addressed for all regions. Eg. adaptation capacity is addressed regarding Australasia and Arctic, but not in the ot (NORWAY)	As can be supported by the underlying chapters, examples are now provided for all regions.
674	65378	SPM	5	44	5	44	It is suggested to add "regional" because it is more appropriate to characterize the cooperation among the member states of the EU as regional cooperation. However, there has been also some cooperation among member states and other countries in Europe that are not member states and this cooperation would be international. (Klaus Radunsky, Umweltbundesamt)	Improved wording has been adopted: "across scales"
675	65649	SPM	5	44	5	44	"adapational policy" or "policy for adaptation" would be better English and clearer. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	the author team does not agree that the provided suggestions are clearer
676	66064	SPM	5	44	5	46	Information about confidence is missing for Europe. (FINLAND)	A level of confidence is now provided for the opening statement, spanning the examples that follow.
677	79802	SPM	5	44	5	46	The lack of systematic information about current adaptation is emphasized for Europe. It is our understanding that quite a lot of information is readily available, for instance through the European Climate Adaptation Platform, see: <a href="http://climate-adapt.eu">http://climate-adapt.eu</a> (NORWAY)	This sentence has been removed.
678	61749	SPM	5	44	5	48	This statement appears to underestimate actual adaptation efforts in Europe. For examples, see the EEA Report No 3/2013 "Adaptation in Europe" published in April 2013 and the CIRCLE-2 "Adaptation Inspiration Book" published in March 2013. Furthermore, hundreds of adaptation case studies are included in the European Climate Adaptation Platform (Climate-ADAPT). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The wording in the present draft has been substantially improved to reflect adaptation experience in Europe.
679	61750	SPM	5	44	5	48	The EU has a lot of mainstreaming policies under development. The text needs to be updated to reflect the European Environment policy on adaptation. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This point is better addressed in the revised wording.
680	63914	SPM	5	44	5	48	Please add uncertainty statement. (GERMANY)	A level of confidence is now provided for the opening statement, spanning the examples that follow.
681	68347	SPM	5	44	5	48	Please check the reference to Section 23.6.4 (NETHERLANDS)	All chapter references have been checked and updated.
682	79168	SPM	5	44	5	48	Comment: What about the National Adaptation Programme for England, which provides ample evidence of integration of adaptation planning into rural development, land-use planning AND conservation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The statement has been deleted.
683	68348	SPM	5	45	5	45	"...limited systematic information on current implementation..". Please add a reference to this limited information, that might be very relevant for others to learn from. (NETHERLANDS)	This statement has been deleted.
684	68349	SPM	5	45	5	45	Please check the sentence "the prioritization of options". It seems that it should be: "the identification of options and awareness raising" (see Ch.23 p.35 line 24 and line 33) (NETHERLANDS)	This text is no longer included.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
685	63213	SPM	5	45	5	48	These statements are not correct. There is evidence of the implementation of adaptation in Europe, for example on the Climat-Adapt website and in Ref. EEA Report No3/2013, 2013: Adaptation in Europe. (Asa Sjostrom, Swedish Meteorological and Hydrological Institute)	The substantially revised wording better addresses this point.
686	70289	SPM	5	45	5	48	Is this statements correct? There is evidence of the implementation of adaptation in Europe, for example on the Climat-Adapt website and in Ref. EEA Report No3/2013, 2013: Adaptation in Europe. (SWEDEN)	The substantially revised wording better addresses this point.
687	80309	SPM	5	47	5	47	"little evidence" -- Is this a formal assessment of amount of evidence? Could this be reworded to "limited evidence" to be in line with the AR5 Guidance Note on the Treatment of Uncertainty in AR5? (Gian-Kasper Plattner, IPCC WGI TSU)	This sentence has been deleted.
688	65382	SPM	5	47	5	48	The information that there is little evidence of adaptation planning in rural development, land-use planning, or conservation is not really reflecting the actual situation in Europe or at least in certain regions in Germany, that have been addressed under the KLIMZUG project. See <a href="http://www.klimzug.de/">http://www.klimzug.de/</a> (Klaus Radunsky, Umweltbundesamt)	This sentence has been deleted.
689	66004	SPM	5	47	5	48	There is also little evidence of adaptation planning in infrastructure sectors, in environmental and market regulation, and in adaptation finance. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	This sentence has been deleted.
690	68350	SPM	5	48	5	48	please check if reference to 23.6.4 is appropriate - it is difficult to see correspondence with the SPM statement (NETHERLANDS)	All chapter references have been checked and updated.
691	65650	SPM	5	49	5	49	Delete redundant "planning" after adaptation to give "adaptation is becoming embedded in planning processes". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The redundancy has been eliminated where the statement occurs in the section.
692	59772	SPM	5	49	5	50	Suggest rephrasing this sentence to 'In Australasia, some adaptation has commenced and adaptation planning is becoming embedded in planning processes, mostly at the conceptual rather than implementation level'. (AUSTRALIA)	In the revision and shortening of this section, overall findings along the lines of this statement occur on line 14 and on lines 23-24 of page 4, with only the specific examples given for Australasia on lines 32-34.
693	77370	SPM	5	51	5	5	"it seems that the emphasis is Australia, If possible I would propose that the sentense to be rephrased to show this emphasis though the structure of the sentence looks Ok" (UNITED REPUBLIC OF TANZANIA)	The clarity of this wording has been improved.
694	59773	SPM	5	51	5	52	It is not clear whether this statement on planning for sea level rise also refers to Australia. Consider rephrasing 'becoming widely adopted' to 'becoming widely recognized'. Adaptation for reduced water availability and sea level rise are not widely adopted. For example NSW has recently revoked their benchmark for planning for sea level rise, and Qld do not have mandatory planning requirements. (AUSTRALIA)	The clarity of this wording has been improved. Additionally, it is planning that is becoming widely adopted.
695	68351	SPM	5	51	5	52	Statement omits caveat statement found in TS, Executive Summary of Chapter 25 and body of Chapter 25: "although implementation of specific policies remains piecemeal, subject to political changes, and open to legal challenges" (NETHERLANDS)	Material on this point is now included.
696	68352	SPM	5	52	5	53	No clear evidence stated to support assertion that adaptive capacity is generally high. (NETHERLANDS)	This sentence is no longer included.
697	79169	SPM	5	53	5	53	Plain English translation of 'transformative responses'? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Please see the box of definitions within the summary for policymakers.
698	68353	SPM	5	54	5	56	This appears to draw on Table 25-2 of Chapter 25. It is difficult to synthesise and summarise, so it appears authors have decided to simply choose some content over other without any obvious reason. (NETHERLANDS)	These examples for observed constraints in Australasia are no longer presented here.
699	59774	SPM	5	55	5	56	The comment that 'different values and beliefs relating to the existence of climate change' as being a constraints to adaptation is not unique to Australasia, yet no other regions refer to this constraint. In addition, Chapter 25 (pg 11) notes that the majority of Australasians accept the reality of climate change and less than 10% fundamentally deny its existence - which implies values and beliefs would only act as a marginal constraint to adaptation. Suggest remove the comment on values and beliefs from the SPM. (AUSTRALIA)	Material on constraints across regions presented in section C addresses the point that many of the examples listed are not unique to Australasia.
700	68354	SPM	5	56	5	56	Please consider to reference Table 25-2 because it seems highly relevant to this claim (NETHERLANDS)	The reference is now included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
701	77987	SPM	6	0	16	0	Sections B and C suggest that a lot of adaptation activities represent approaches to address or even manage risks. Also, both sections imply that adaptation activities might be based on risk analyses or risk assessments. I am not so sure, whether this is really the case. From my point of view and my experience with adaptation policies in Europe, most adaptation activities are more concerned with climate change impacts and vulnerabilities. At least in Europe, the UK and Switzerland are the only two countries having conducted serious climate risk analyses. (Marco Puetz, Swiss Federal Institute for Forest, Snow and Landscape Research WSL)	This section on observed adaptation experience presents an overview of responses considered on lines 11-12 of page 4, indicating that adaptation has occurred in response to impacts and vulnerabilities, and helping to address this point. Please note that future risks are equivalent to potential future impacts
702	65651	SPM	6	1	6	1	"vulnerabilities to climate change" is better than "climate vulnerabilities" (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The phrase is no longer used.
703	70972	SPM	6	1	6	3	Suggest changing the last phrase to "... programs, adaptation planning is most evident / advanced at the local level. "Leadership" may not be the correct word as municipal action is often achieved through funding from other orders of government, or in response to policy drivers from other orders of government. There is no doubt that municipalities are leading in adaptation planning, as that is the scale that impacts are most visible. (CANADA)	The revised wording no longer uses the word "leadership" here.
704	63915	SPM	6	1	6	4	Contradiction: "...more leadership in adaptation planning at the local level" and "Important barriers exist..., top-down decision making,...". Please revise. (GERMANY)	"Leadership" has been removed from the 1st statement, and the barriers sentence deleted here.
705	76968	SPM	6	1	6	7	Include climate change impacts in South Americ (CHILE)	Examples are now given for all regions.
706	65652	SPM	6	2	6	2	"Planning for adaptation" better? (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The wording used in the finding reflects common practice.
707	66005	SPM	6	3	6	3	Path dependency: There is evidence not only for North America. Please put that to a better place. Please also be more specific which path dependencies you are referring to (there are so much out there). (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	A paragraph on constraints across regions is now presented in section C-1. Path dependency, however, is not named as a specific constraint within this paragraph, as it is addressed more broadly in the maladaptation paragraph in C-1.
708	70290	SPM	6	3	6	3	It is not clear what "path dependency" means here. Later on, when reviewing SPM Figure 2c I drew the conclusion that it might be the "adaptation pathways" discussed in relation to this graph. If this is correct a reference here to the Figure would be helpful. (SWEDEN)	The phrase is no longer used here.
709	65601	SPM	6	3	6	5	Also politically motivated opposition! (David Flint, Cass Business School)	This sentence is no longer included here.
710	63916	SPM	6	3	6	7	The barriers to effective adaptation are not specific, therefore we suggest the following (shortening of two existing sentences): "Although barriers to effective adaptation exist, few examples of proactive adaptation anticipating future climate impacts are largely found in sectors with longer-term decision-making, including energy and public infrastructure." (GERMANY)	The sentence on barriers is no longer included here.
711	68355	SPM	6	3	6	7	The list of barriers is not clear in it self and needs additional explanation to be understand for example how "top-down decision making" could be a barrier for effective adaptation. (NETHERLANDS)	This sentence is no longer included here.
712	76163	SPM	6	5	6	10	Suggest that this section reflect what Figure 3-2 shows (how anthropogenic greenhouse forcing changed the probability of occurrence of flood events) as well as what the result illustrates (the probabilistic character of attribution when uncertainty is multi-dimensional). (UNITED STATES OF AMERICA)	This comment appears to be misplaced.
713	61751	SPM	6	6	0	0	add confidence statements (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	A level of confidence is now presented for the opening finding introducing the examples across regions.
714	70973	SPM	6	8	0	10	Strongly recommend revising the statement that indigenous people have a high adaptive capacity, as that is not supported by most of the generally used indicators of adaptive capacity such as economic wealth, access to technologies, infrastructure, institutions, etc .(e.g., Smit, Smith et al 2003). It may be appropriate to characterize indigenous people as traditionally being highly adaptive / adaptable, but this is not the same as saying they possess a high adaptive capacity. Suggest reviewing against literature base and revising appropriately. The bold finding is also missing confidence or agreement/evidence qualifiers and supporting text to better explain the finding. (CANADA)	The scope of the finding has been expanded.
715	77267	SPM	6	8	6	0	SPM does not include explanation of negative impacts on arctic people (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	This section focuses on adaptation experience not on impacts.
716	70291	SPM	6	8	6	8	Is the adaptive *capacity* of indigenous Artic people actually *higher* than elsewhere, or is it rather that the existing adaptive capacity (irrespective of level) is realised because of willingness to adapt due to a feel of urgency? There is a distinction between these two (see comments to Box SPM.3 Figure.1) (SWEDEN)	The wording of the conclusion has been improved, no longer asserting "high." Additionally, the scope of the statement has been expanded.
717	77531	SPM	6	8	6	8	It is not clearly demonstrated that indigenous people have a high degree of adaptive capacity (SWITZERLAND)	The scope of the statement has been broadened and high adaptive capacity is no longer referred to.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
718	63917	SPM	6	8	6	10	Please add level of confidence. (GERMANY)	A level of confidence is provided for the opening conclusion that introduces the regional examples that follow.
719	66065	SPM	6	8	6	10	Information about confidence is missing for the Arctic. (FINLAND)	A level of confidence is now provided for the opening conclusion that introduces the regional examples that follow.
720	68356	SPM	6	8	6	10	Please consider extra notes for the summary in buttressing the sub-heading . This is because the sub-heading gives the picture of indigenous people developing solutions to adapting to climate change. (NETHERLANDS)	The scope of the statement has been expanded, and its relative length compared to other examples harmonized.
721	68357	SPM	6	8	6	10	It is hard to understand from the tekst why a reference is made to the section 28.2.4, as this section describes the direct and indirect impacts of climate change on the indigenous people, but does not directly support the statement from the SPM: "in the arctic ... with scientific partners". Rather, it appears that only the co-production of studies on the impacts of climate change is discussed in these sections. (NETHERLANDS)	Chapter references have been checked and corrected where needed.
722	68358	SPM	6	8	6	10	This statement is supposedly based on section 28.2.7 from Chapter 28. But this section does not exist in the main chapter. Perhaps the layout of the chapter has been changed, without updating the references in the SPM/TS? (NETHERLANDS)	Chapter references have been checked and amended where needed.
723	76164	SPM	6	8	6	10	This summary conclusion emphasizes the adaptive responses of indigenous people in the Arctic--a fine point to make--but fails to indicate serious negative impacts (i.e., that changes in the Arctic are far more severe than elsewhere in the world). The reader will be left with the inaccurate impression that policy need not concern itself with the impacts on indigenous people in the Arctic. We would strongly encourage a more balanced treatment. Additionally, elsewhere in the report (i.e., Ch 18), it is stated that unique cultures / peoples face greater risks and are more vulnerable than many/most others. The issue is that the magnitude and rate of changes impacting indigenous people in the Arctic is (and is projected to be) greater than elsewhere in the world. (UNITED STATES OF AMERICA)	The scope of this statement has been broadened. Please note however that this section focuses on adaptation experience rather than on impacts.
724	78196	SPM	6	8	6	10	Three recommendations here. (1) What is the status on the level of agreement and status of evidence? It should be included here. (2) With regard to the assessment that there is 'high' adaptive capacity, it should be revised to 'low adaptive capacity with high uncertainty'. The adaptive capacity of indigenous peoples is not the same as in the past, due to various factors. Traditionally, indigenous peoples have been adaptive and resilient to change but present day climate change is creating threats happening at a rate faster than indigenous knowledge and resources can adapt. Indigenous communities today are also more dependent on the rest of the world. While some behavioural adaptations have been made (i.e. people changing hunting patterns due to melting sea ice) overall adaptive capacity should be characterized as low because the necessary policies, investments in critical infrastructure and systemic changes needed for climate resilience are currently largely absent (i.e lack of adaptation policies, lack of investment in water and housing infrastructure, resilient food systems). However, there is high uncertainty when it comes to assessing adaptive capacity because the future may bring new opportunities, resources that increase Arctic people's ability to adapt. Read Arctic Council's report for more information: <a href="http://www.arctic-council.org/arr/wp-content/uploads/2012/01/Arctic-Resilience-Interim-Report-2013-Part-III.pdf">http://www.arctic-council.org/arr/wp-content/uploads/2012/01/Arctic-Resilience-Interim-Report-2013-Part-III.pdf</a> (Andrew Wong, University of Waterloo)	A level of confidence is now provided for the opening conclusion that introduces the regional examples that follow. High adaptive capacity is no longer referred to. The scope of the statement has also been expanded.
725	79170	SPM	6	8	6	10	Anysupporting information needed for this bullet point, as all the others in this group have some? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The length of examples across regions has been further harmonized.
726	79171	SPM	6	8	6	10	Comment: this looks a bit like a very positive spin on something that could potentially devastate a culture. Can this be tempered by mention of the large amount of change indigenous people of the Arctic have had to cope with? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The scope of the statement has been expanded, and a more nuanced assessment is now presented.
727	79803	SPM	6	8	6	10	The rationale for high adaptive capacity in this particular region compared to other regions are unclear and maybe this is more about the amount of activities related to adaptatio in the Arctic. (NORWAY)	High adaptive capacity is no longer referred to.
728	57380	SPM	6	11	6	11	Please add a dot point here about small islands, since most readers acknowledge that they are among the countries/ communities most affected by CC. Perhaps about the need to support community-based adaptation, with more than just awareness programs. (Tony Weir, University of the South Pacific)	Examples are now provided for all regions.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
729	80310	SPM	6	12	0	0	Table SPM.2: This table appears to be more of a cross-working group synthesis product rather than something we would expect to find occupying 3 pages of the WGII SPM. A large proportion of the material in this table is based entirely on the WGI assessment, and this will present a challenge in terms of ensuring and maintaining consistency with the Final draft of WGI, and the approved text of the WGI SPM. If this table is to remain in this form, it is crucial that line of cite to the WGI statements is added clearly and directly with each statement - currently it is not clear what statements are coming from WGI, and what are from WGII. (Gian-Kasper Plattner, IPCC WGI TSU)	This table is no longer included in the summary for policymakers.
730	79172	SPM	6	12	6	12	SPM 2: o Food security in Africa requires a balance of sustainable high and low technology solutions. The increase in yields can in part be achieved through increased social capital eg education and extension services. However, sustainable intensification also requires innovation in the development and use of new fertiliser products which have much greater resource efficiency and reduced environmental impact in their production and deployment. o Flood risk. Innovative and enlightened approaches to flood-risk management require a balanced portfolio of structural and non-structural measures as evidenced by Netherland’s and UK sustainable approaches in ‘making space for water’. – mangrove restoration to reduce flood risk and protect shorelines from storm surge – a very good example but the broader context should state that this process can carry direct and indirect costs. For example, natural vegetation can funnel fires into settlements and harbour pests. As the Foresight report states, the main malaria vectors are associated with natural vegetation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers.
731	63319	SPM	6	12	6	19	Consider deletion of SPM Table 2, or a major edit. Much of the detail in the atble is more appropriately included in the Technical Summary and can be referenced within the text. (IRELAND)	This table is no longer included in the summary for policymakers.
732	64892	SPM	6	12	6	19	Recommend including an example from indigenous communities in Table SPM.2 - see Nakashima, D et al. (2012) "Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation" Paris, UNESCO and Darwin, UNU, pg 47) for example. Also Journal of Climatic Change Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (In Press) (Amejali Ramos Castillo, United Nations University - Institute of Advanced Studies)	This table is no longer included in the summary for policymakers.
733	70936	SPM	6	12	6	19	I wonder if table SPM.2 could be simplified. It contains a lot of information and perhaps some of this could be left out. (Fuglestedt Jan, CICERO)	This table is no longer included in the summary for policymakers.
734	70338	SPM	6	13	6	19	Given the objective of the table (=“illustrative examples”), the table could/should be simplified. E.g. why giving information on exposure & vulnerability. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This table is no longer included in the summary for policymakers.
735	70974	SPM	6	13	6	19	Table SPM.2 - Suggest expanding the "Broader Context" and moving this information to appear as the first or second box for each example. This will reinforce the message of the chapter that adaptation occurs in response to many drivers, with climate not always being primary. The detail on climate information could be reduced. Caption could highlight incremental vs. transformational change, noting why the Australian example is considered transformational. (CANADA)	This table is no longer included in the summary for policymakers.
736	79173	SPM	6	13	6	19	Table SPM 2: there is a final column missing in this table - human health impacts, eg the effects of lengthened pollen seasons on allergic reactions, hayfever etc; deaths from drought & under-nutrition following poor wheat yields; mental health impacts from rising food costs; impact on mental health and child poverty/deprivation/reduced life expectancy from reduced employment rates as production plant resources decrease; mortality rates from malaria; health impacts from reduced livelihoods. This would then help to give a better grasp on what the impacts of climate change actually mean for us as a human race. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers.
737	68360	SPM	6	14	6	14	Apparently, resilience is also an important concept in the summary, but it is not defined on page 2 (NETHERLANDS)	This table is no longer included in the summary for policymakers.
738	68359	SPM	6	14	6	15	What is meant “influenced” or should it be motivated. (NETHERLANDS)	This table is no longer included in the summary for policymakers.
739	65379	SPM	6	15	6	15	The term "scale of risk management" used might confuse. It is suggested to delete the words "at the scale of risk management". (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers.
740	76165	SPM	6	20	6	20	To this point, there has been no mention of the insurance industry (and it does not seem to appear later in the SPM). The same applies to other industries with direct investments and decisions that are affected by/at risk because of climate change. Suggest that the authors address these industries. (UNITED STATES OF AMERICA)	Insurance is discussed in several sections of the SPM, including A-3, B-2, and C-1. Observed impacts and future risks on other sectors are addressed in sections A and B.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
741	61752	SPM	6	21	7	5	Decision making is one key challenge of current adaptation processes, particularly for policymakers. The SPM offers very few hints on knowledge on support and tools to help decision making. The statements presented are rather obvious, particularly after dedicating a full chapter (2) to the topic. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Decision support is addressed in section A-3, based on the underlying chapter assessment.
742	62674	SPM	6	21	16	43	Risks seems to be very emphasised from Section B to C. Some suggestions as the above mentioned genneral comments. (RONGSHUO CAI, Third Institute of Oceanography)	Future risks and opportunities for adaptation are presented in section B. Please note that future risks are potential impacts, and as illustrated in Figure SPM.1, they encompass all relevant aspects of IAV.
743	85184	SPM	6	23	6	33	Current scenarios and models are defective because they do not envisage the absence of warming for the Lst 15 years, or take account of the essentially chaotic character of the climate. (Vincent Gray, Climate Consultant)	See the Working Group I contribution to the AR5 for discussion of these issues.
744	63320	SPM	6	24	0	0	add "current" to ".. and future society" , (IRELAND)	This text has been moved to the chapeau of section C. This section is forward-looking, so the focus on the future has been retained.
745	71507	SPM	6	24	6	24	Instead of saying " Managing the rsiks of climate change involves decisions with implications for future soicity [...]", plesase say "Managing the rsiks of climate change involves decisions with implications for future soiceties [...]" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This text has been moved to the chapeau of section C. This suggestion has been followed.
746	58828	SPM	6	24	9	2	We recommend including a discussion about the cost-effectiveness of disaster risk reduction. Suggested additions: "Evidence of the economic efficiency of specific adaptation approaches remains limited and fragmented, but it is recognised that preventive measures are often cost-effective. Expenditure on prevention is often lower than relief spending, which rises after a disaster and remains high for several years." Suggested reference: United Nations and World Bank (2010) Natural Hazards, UnNatural Disasters: The Economics of Effective Prevention. Washington, D.C.: World Bank. (Carlo Scaramella, World Food Programme)	Linkages of adaptation with disaster risk reduction are given in sections A-2, B-2, and C-1, but the cost-effectiveness of disaster risk reduction itself is outside the scope of this report.
747	58829	SPM	6	24	9	2	We recommend highlighting the role of social protection in risk management. Suggested text: "Social protection mechanisms (including cash and asset transfers) are important components of disaster risk management and climate change adaptation. Social protection programmes can support vulnerable populations, allowing them to meet basic needs in post-disaster contexts and enhance resilience to future rapid-onset disasters and long-term environmental change." Suggested reference: Johnson, C.A. and Krishnamurthy, P.K. (2010) Dealing with displacement: Can "social protection" facilitate long-term adaptation to climate change? Global Environmental Change. 20(4): 648-655. (Carlo Scaramella, World Food Programme)	Social protection measures are discussed in sections A-2 and B-2.
748	70339	SPM	6	25	6	25	Bojective Box SPM4 is unclear/could be removed. Curenly teh content of teh tekst box is very general and thus not contribute to the synthezied information of an SPM (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This box has been removed, with relevant material integrated into section A-3.
749	70340	SPM	6	26	6	26	Function figure SPM.2 unclear. The figure nicely shows that the adaptation policy process can be illustrated in different ways (/policy cycles). All these show the need for (i) flexibility; (ii) kind of monitoring & evalaution at the end. Deptite these two points that are also mentioned in the text (I39043), the relation between text and figure is unclear/could be decrobed more explicit. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This figure (now SPM.3) has been revised and simplified.
750	62434	SPM	6	29	0	0	The information provided in this section reads more like from a text book and not of much relevance to policy makers (INDIA)	This section has been removed, with some material moved to the introduction of the SPM and to A-3. The focus on policy-relevant material has been improved.
751	62675	SPM	6	29	6	49	Are there other words to replace "Iterative Management" or "iterative risk management" for ordinary readers? Are there some differences between the physcal climate system and the climate system? Should we unify or check the definitions of the climate system and its related concepts in the SPM? And keep them consistency with AR5 reports. (RONGSHUO CAI, Third Institute of Oceanography)	The clarity of the discussion of iterative risk management, now in section A-3, has been improved. Glossary definitions have been harmonized across the Working Group contributions to the AR5.
752	63918	SPM	6	29	7	5	Please rename Section B.i. "Structure and Elements of Iterative Risk Management". Section is not dealing with determinants of risk management. (GERMANY)	This section has been removed, with some material moved to the introduction of the SPM and to A-3. Section A-3 is now titled "The Decision-making Context."

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
753	66066	SPM	6	31	6	33	"Legal" should be added to the list of systems as also legislation affects actions and initiatives related to combating climate change. (FINLAND)	This text has been removed, although similar points are now made in the introduction to the SPM. Figure SPM.1, related to this text, explicitly highlights governance.
754	68361	SPM	6	31	6	33	"is produced through" gives the impression of intention. We would prefer "results from" (NETHERLANDS)	This text has been removed, but similar wording appears in the caption to Figure SPM.1. "Produce" has been retained but the sentence has been revised to avoid the impression of intention.
755	68363	SPM	6	31	6	33	It might be helpful to simplify the sentence. See for example the text in lines 47-51 (NETHERLANDS)	This text has been removed and a simpler sentence in the Figure SPM.1 caption has been retained as suggested.
756	79174	SPM	6	31	6	33	Bold text is very technical and not accessible to non-scientists. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed and a simpler sentence in the Figure SPM.1 caption has been retained.
757	68362	SPM	6	31	6	35	confidence statement is lacking (NETHERLANDS)	This text is contextual and thus has been moved to the introduction to the SPM. A confidence statement would not be appropriate.
758	70975	SPM	6	31	6	35	Suggest rephrasing / simplifying the bolded statement. The final sentence is very important, but the bold sentence does not currently add value. (CANADA)	This material is now simplified and presented in the introduction to the SPM and Figure SPM.1.
759	77110	SPM	6	31	6	35	This needs to include a reference to risk at different timescales. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	The evolution of risk over different timescales is discussed in general in section A-3, with specific findings throughout section B.
760	80311	SPM	6	31	6	35	Is it only "through their effects on greenhouse gas emissions" that alternative development paths influence climate change related risk? What about changes in albedo, water availability, etc.? Please clarify. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed, but this interaction is illustrated in Figure SPM.1, and the arrow has been changed to encompass land-use change as well as emissions.
761	77532	SPM	6	33	6	33	Instead of "Alternative development paths" use the expression "Development path choices" (SWITZERLAND)	This specific text has been removed, but a similar point is now made in the chapeau of section B.
762	60511	SPM	6	34	0	0	... and by increasing resilience... (Hélène CONNOR LAJAMBE, HELIO International)	This text has been removed, but resilience building is discussed in section C.
763	63321	SPM	6	34	6	44	This section of text could be simplified. The essential message is quite straightforward: "Robust adaptation requires iterative approach to decision making and risk management." In a changing world, decisions need to be revisited to ensure progress along a sustainable pathway. (IRELAND)	This text, now in section A-3, has been simplified.
764	62080	SPM	6	37	6	37	Please elaborate on, or define, "dynamic complexity." (Joann de Zegher, Stanford University)	Term has been removed.
765	66008	SPM	6	37	6	37	What is meant by 'dynamic complexity' – such terms are used very differently by different scholars. Please clarify or avoid. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	Term has been removed.
766	68364	SPM	6	37	6	38	Uncertainty about the actual development of climate change impacts, and behavioural and technical options, requires dynamic adaptation. (NETHERLANDS)	This text, now in section A-3, has been simplified.
767	70976	SPM	6	37	6	38	Suggest deleting the first line so that the bold statement reads "Robust adaptation efforts require iterative risk management strategies" This is an example of a simple and clear statement that will resonate with decision makers. While important, the first line is largely a repeat of lines 26-27 of same page. (CANADA)	This point, now in section A-3, has been simplified.
768	79804	SPM	6	37	6	38	The need for monitoring is important and should be mentioned in the bolded text: "require iterative management and monitoring strategies". (NORWAY)	The importance of monitoring has been highlighted in the first paragraph of section A-3.
769	59775	SPM	6	37	6	44	The impact of political institutions and governance arrangements as discussed in chapter 14 and chapter 16 should be mentioned here. In particular, the short term nature of political cycles (often 3 to 4 years) and the challenges associated with managing impacts across longer term time scales (AUSTRALIA)	The importance of governance is highlighted in Figure SPM.1 and in section C.
770	68365	SPM	6	37	6	44	The SPM states that 'While no-regret, low-regret and win-win strategies have attracted attention in the past, now there is increasing recognition that [...]. However, Chapter 15.2.3, to which this statement in the SPM refers, among others, states that 'A no-regrets co-benefits approach [...] has become increasingly common.' (Ch15, page 14, line 11-12). Related statements also appear in the Executive summary of Chapter 15 (Ch15, Page 3, line 21-23 and line 41-42). Could you please verify the consistency of these statements? Is the use of these no-regret strategies still common? increasing or decreasing? (NETHERLANDS)	These topics are now addressed in section A-2, drawing from Chapter 15 and many others.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
771	68366	SPM	6	37	6	44	The sentence 'Due to the uncertainty, dynamic complexity and short to long timeframes associated with climate change, robust adaptation efforts require iterative risk management strategies.' is presented as main conclusion printed in bold in both the SPM and the TS, while in the Executive summary of Chapter 15 (page 3, line 48-49) it is merely a line appearing under another heading. Moreover, this statement does not appear at all in the main text of Chapter 15 or any other chapter. So where is this conclusion actually underpinned in the main text? (NETHERLANDS)	These topics are now addressed in the first paragraph of section A-3, which integrates material from a number of chapters indicated in the line-of-sight references to chapter sections.
772	78268	SPM	6	37	7	5	Is there any agreement around the time interval at which iterative decision-making should take place? A recommendation/illustration in figure SPM.2 could provide helpful information for stakeholders/policymakers looking to adopt this approach. (Shane Easter, Carnegie Institution of Washington )	Figure SPM.3 provides an illustration of iterative risk management, and this process is discussed in more detail in Chapter 2 and other chapters of the report.
773	63322	SPM	6	39	0	0	These options will continue to attract attention, not just in the past tense (IRELAND)	Text revised, and this forward-looking point is addressed in section C-1.
774	67955	SPM	6	39	0	43	This sentence seems to imply that no-regret, low-regret, and win-win strategies are adaptation options of the past but as discussed in Chapter 15 (page 3 lines 21-23), they have been and still are effective strategies, especially in developing countries; and therefore, the sentence should be revised to avoid misunderstanding. (JAPAN)	Text revised, and this forward-looking point is addressed in section C-1.
775	61753	SPM	6	39	6	39	What are "no-regret, low-regret, and win-win strategies"? More explanation is needed. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text revised, and sections with relevant statements providing further explanation include A-2 and C-1.
776	61754	SPM	6	39	6	41	Why are no-regret etc. strategies contrasted with the need for iterative risk management? There are not opposite approaches. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text revised to avoid this contrast.
777	79175	SPM	6	40	6	41	'extent of climate change' - add 'dependent on the speed and magnitude of mitigation actions to reduce GHG emissions'. (otherwise again it poses doubt on whether climate change has any impact to be worried about). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text (now first paragraph in A-3) revised to clarify that the uncertainty is related to the magnitude of future climate change and the severity of impacts. The subsequent paragraph in A-3 clarifies the role of mitigation and adaptation.
778	60512	SPM	6	43	0	0	Another learning tool is consultation with local populations (Hélène CONNOR LAJAMBE, HELIO International)	This point is addressed in section A-3 (p. 6, l. 1-2).
779	63919	SPM	6	43	6	43	Delete the word "tools" because monitoring and evaluation cannot be described here as tools. We instead suggest to insert "steps" because the sentence refers to an iterative process. (GERMANY)	Word changed to "components."
780	79176	SPM	6	43	6	43	Comment: 'monitoring and evaluation are learning tools in this process' - how? Can tell us something about the effectiveness of existing adaptation measures. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This point is clarified in the first paragraph of section A-3.
781	70600	SPM	6	47	0	0	Change the order at the end of the line to " physical climate system, vulnerability and exposure"so that the order in the caption is the same as the order in the figure [or change the order in the figure to be the same as the caption]. (NEW ZEALAND)	Figure revised so that vulnerability and exposure are presented separately.
782	65653	SPM	6	47	6	47	Delete "schematic of" redundant? (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Suggestion followed.
783	80312	SPM	6	50	6	50	"physical hazards" -- SREX used "physical event". Would it make sense to be consistent with SREX terminology? (Gian-Kasper Plattner, IPCC WGI TSU)	This figure illustrates a broader scope of hazards than the figure in SREX, which focused on extreme events.
784	63323	SPM	6	51	6	51	Expand the discussion of Key and Emergent here, rather than cross reference to a later section. Does the word "key" have the same meaning in these definitions as in the previous sentence (key drivers). Figure SPM 1 is useful even without these additional elements within the Risk intersection. Without discussion on their meaning "Key" and "Emergent" confuse the message of the diagram. (IRELAND)	These elements have been removed from the figure for clarity. Key risks are discussed in section B.
785	65654	SPM	6	54	6	54	Delete "Illustration of" Redundant? It is clearly an illustration. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Given the simplified nature of the figure, the term has been retained in Figure SPM.3.
786	68367	SPM	6	54	7	2	Please note that literature has shown for decades now that planning never occurs very orderly and does not follow a cycle. (NETHERLANDS)	This point is addressed in the first paragraph of section A-3, which is now accompanied by Figure SPM.3.
787	66009	SPM	6	54	7	5	It is crucial to clarify here that such process models of adaptation are ideal type. Practical planning does not and need not follow these steps in this exact sequence. (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	This figure, now as Figure SPM.3, is presented as an illustration of the general process.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
788	70939	SPM	6	54	7	5	While it is referred to SPM.2 A and C, there is no reference to B. (Fuglestedt Jan, CICERO)	These panels have been removed. See Figure SPM.3.
789	70977	SPM	6	54	7	5	The caption for Figure SPM.2 does not capture effectively the concept of mainstreaming. This link could be improved with the following minor changes. "Adaptation efforts can be linked with development, disaster risk reduction, and other policy goals". Delete the word "adaptation" on line 56 and the first occurrence on line 2 as they infer that adaptation has unique governance and results in unique decisions. It is important to convey adaptation as part of existing decision-making processes rather than as something new and different. (CANADA)	Text removed from caption and figure revised as Figure SPM.3. Integration of adaptation with planning and decision-making is addressed in section C-1.
790	63920	SPM	6	55	6	55	Please insert after "... needs": "assessment" and adjust figure accordingly. (GERMANY)	The figure and caption have been revised as Figure SPM.3, and the relevant wording has been removed.
791	65387	SPM	6	56	0	0	It is suggested to substitute "or" by "and/or" in order to clarify that adaptation can be also linked to both, development and disaster risk management. (Klaus Radunsky, Umweltbundesamt)	This specific text has been removed (see Figure SPM.3), but similar points are made in section C-1, without the implication of an alternative in this context.
792	63921	SPM	6	56	6	56	"Adaptation governance at multiple scales underlies capacities." Message unclear. (GERMANY)	Text has been removed. See Figure SPM.3.
793	66239	SPM	7	0	22	0	Figure SPM1 contains too much information and is difficult to understand (Leopold Some, Centre National de la Recherche Scientifique Technologique)	Figure and caption, now as Figure SPM.3, have been revised for clarity.
794	63324	SPM	7	2	7	5	In Figure SPM.2 C it is not clear why only one pathway is highlighted. This gives an impression (contrary to the actual text) that there is an optimum solution, and the other pathways are sub-optimum. Pathways which remain within the "Adaptive Space" could be colour coded in shades of green and those that stray out of this space turn to orange or red. I take it that the fading of the "arrows" indicate increasing need for a revised decision. This should be made clear. The flow of this diagram does indicate the diversity of options and alternative pathways possible to the same goal. (IRELAND)	This figure has been removed in the new Figure SPM.3.
795	62435	SPM	7	7	0	0	The information provided in this section also reads like that from a basic textbook on adaptation. Most of the paragraphs and the headings are very generic and of little relevance to policy making. (INDIA)	This material is now simplified and presented in section C-1, with improved focus on policy-relevant messages.
796	59776	SPM	7	7	8	6	The principles are expressed more clearly in the Technical summary, perhaps consistency between the two sections of the report could be improved. (AUSTRALIA)	This material is now clarified and presented in section C-1 of both the SPM and Technical Summary.
797	61755	SPM	7	7	8	6	Principles for effective adaptation should also summarise knowledge about costs, cost efficiency, sustainability, flexibility, no regret, etc. Just presenting all the options as equivalent examples of adaptation might not be useful. E.g. land-use planning versus sea walls or integrated coastal management versus beach nourishment would highlight the strengths and limitations of different options. Adaptation is not only about doing things but also about choosing the right options. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This material is now presented in section C-1, along with a finding that no single approach is appropriate across all settings. Knowledge about the effectiveness of options is evaluated in the underlying chapters of the report.
798	63922	SPM	7	7	8	6	Section B.ii. deals with (few) enhancing factors for effective adaptation (and not with principles). We suggest to rename the section in "Enhancing Factors for Effective Adaptation". (GERMANY)	This material is now presented in section C-1, and provides information on several aspects of adaptation, not just enhancing factors.
799	70978	SPM	7	7	9	2	Suggest rephrasing heading as not all the content that follows represent "principles" (in particular, the bold statements related to constraints and modeled future impacts) (CANADA)	This material is now presented in section C-1, in a form best described as principles.
800	70341	SPM	7	9	7	11	Unclear relation between the two sentences. Indeed Table SPM.3 gives nice examples, but how are these related to barriers & opportunities (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Text revised to improve logical flow.
801	79805	SPM	7	10	7	11	This sentence introduces "types of responses to climate change", and then it refers to Table SPM 3 which uses different wording. In this table, please consider this wording as well. (NORWAY)	Wording has been harmonized (see section C-1).
802	64334	SPM	7	14	7	16	The examples are useful but the headings are confusing, particularly the apparent distinction between development and planning, adaptation and transformation. All have the goal of vulnerability reduction, and all are elements of adaptation. (Don Lemmen, Canada National Study)	Table terminology has been simplified, and the caption clarifies that these approaches are overlapping and are often pursued simultaneously.
803	68368	SPM	7	18	7	18	Please check the notification of "MEDIUM agreement", whereas in the executive summary of chapter15 p-4 line 20 it reads "HIGH agreement" (NETHERLANDS)	Revised text in section C-1 is consistent with the calibrated language in the underlying chapter.



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804	63923	SPM	7	18	7	19	Neither the synthesis in chapter 16.5 nor the assessment of ethical dimensions of adaptation in Ch 16.6 support the thesis that all actors have opportunities for effective adaptation: The greater the magnitude of climate change, the greater the likelihood that adaptation will encounter limits (executive summary Ch. 16). Additionally, the lower the adaptive capacity or the higher the vulnerability of actors, the greater the likelihood of no, ineffective or maladaptation. Especially the first sentence in bold letters is not valid in its generality. Furthermore we cannot follow the expert judgment of "medium agreement, medium evidence" as no literature source is given explicitly. Therefore, the first sentence in bold letters should be deleted. So the finding should begin with "Because adaptation ... (Figure SPM.2A)", and this sentence should be highlighted (bold). (GERMANY)	This text, now in section C-1, has been revised to clarify the finding. The finding on encountering limits is also presented in section C-2, and maladaptation is addressed in C-1.
805	70937	SPM	7	18	7	19	This sounds strange to me. I guess I misunderstand this, but is this really the case? I would guess the opportunities are different at the different levels. (Fuglestedt Jan, CICERO)	This text, now in section C-1, has been revised to clarify the finding.
806	79806	SPM	7	18	7	19	The heading of this section is "Principles for Effective Adaptation". It is not obvious to the reader that this finding is one of the most important findings to support effective adaptation. Please consider to describe the finding in line 22 to 26 (high a (NORWAY)	This text, now in section C-1, has been revised to clarify and focus the finding.
807	58062	SPM	7	18	7	29	It does not seem that lines 20 to 29 are actually developing the statement in lines 18 and 19. All are very important topics however the argument that anyone can actually do adaptation, is not justified or further developed. (Carmen Lacambra Segura, Grupo La era)	This text, now in section C-1, has been revised to clarify the finding.
808	63325	SPM	7	18	7	29	Keep the key statement, and edit rest of text to focus on sectors. (IRELAND)	Sectoral adaptation is addressed in section B-2.
809	77359	SPM	7	18	7	29	Actors at all geographical and institutional levels and in different development contexts have opportunities to facilitate, initiate and implement effective adaptation action. Everyone has an opportunity for everything but Opportunities are not the same (Maria Jose Galarza, Ministerio del Ambiente del Ecuador)	This text, now in section C-1, has been revised to clarify the finding.
810	80515	SPM	7	18	7	29	"National Governments take a coordinating role fo adpatation actions ... to protect vulnerable groups..." (Gentry Blake, Institution no 1: Gente de litoi A.C., non-profit in Mexico. Dir. of Health Services.)	Wording has been revised.
811	80516	SPM	7	18	7	29	Commentary: sub national adpatation planning and state level adaptation planning in Mexico is carried out with little to no input from indigenous peoples as evidenced by the closed non-consultative closed door process for funding adapatation interventions. Any framework for indigenous and climate change adaptation must overcome these geographic and cultural limitations and enable the identification of indigenous in temporal and future time and space given the task before the IPCC to project future impacts. Identification of indigenous people's relation to their ancestral land base, their degree of migration, and their adaptive capacity is critical when assessing how to make adaptation planning with indigenous peoples more viable. An analytetical framework that better defines indigneous peoples for the purpose of their participation in adpatation planing , see ppp 1-2, and pp 8-10 in the attached supporting document : Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry (Gentry Blake, Institution no 1: Gente de litoi A.C., non-profit in Mexico. Dir. of Health Services.)	This point is addressed in section A-3 (p. 6, l. 1-2).
812	70342	SPM	7	19	7	21	Incomplete sentence (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Text has been revised.
813	63924	SPM	7	20	7	20	The role of adaptive governance for the implementation of concrete actions is underrepresented in SPM. Insert here: Adaptation governance plays a key role to promote the transition from planning to implementation of adaptation (taken from Chapter 15, executive summary, P 4, L19/20). (GERMANY)	The importance of governance is highlighted in Figure SPM.1 and in section C.
814	70343	SPM	7	22	7	22	Why referring here to figure SPM.2A (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed (and the figure has been revised).
815	68369	SPM	7	22	7	25	Please check the confidence levels. The confidence level belonging to the sentence 'National governments ... of government.' as found in the SPM (page 7, line 22-25) is High agreement, ROBUST evidence. In the Executive summary of chapter 15, this sentence is found in a paragraph which has High agreement, HIGH evidence (Ch 15, page 3, line 9-11). (NETHERLANDS)	"Robust" is the designated descriptor for evidence.
816	70344	SPM	7	22	7	25	Too general sentence. The sentence is in potential interesting but than I would like to see how this could be taken up bu the different scales. Then it becomes interesting for the foreseen reader/user of teh SPM. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text, now in section C-1, has been revised for clarity. Further details are provided in the underlying chapters of the report.
817	70979	SPM	7	25	7	29	The sentence "local groups and businesses bear responsibility for implementing "top-down" flow of information and financing and for scaling up" is quite strong - does this imply that they bear this responsibility alone? Other parts of the SPM note that adaptation planning and action occurs at multiple scales and that responsibility is shared across them. (CANADA)	This text, now in section C-1, has been revised for clarity.

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818	60513	SPM	7	26	0	0	Please add NGOs and civil society (Hélène CONNOR LAJAMBE, HELIO International)	The finding focuses on local government and the private sector.
819	63925	SPM	7	26	7	26	The statement "the private sector is a critical actor to progress adaptation" is not well proved within the underlying chapter (confidence level?). The listed responsibilities (translating the top-down flow of information and financing; scaling up efforts of communities and households) are mostly tasks for local governments or governance institutions. Therefore: Delete "and with the private sector" . (GERMANY)	This text, now in section C-1, has been revised for clarity.
820	79177	SPM	7	28	7	28	I suggest that the phrase should be " .....communities, industry and households....." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The statement reflects what can be supported by the assessment in the underlying chapters.
821	70709	SPM	7	31	7	32	Word order seems not logic. Do you mean 'Strategies and actions that increase climate resilience while at the same time helping to improve human livelihoods, social and economic well-being, and responsible environmental management can be pursued now can be pursued now (high confidence)' (BELGIUM)	This text, now in section C-1, has been revised for clarity.
822	63926	SPM	7	31	7	35	Whereas the development impacts of low regret measures are stressed, there is no mentioning of the contributions of general development action on increasing climate resilience (e.g. the difference between NL and BGD). (GERMANY)	Revised text in section C-1 addresses interactions with development.
823	57381	SPM	7	31	7	37	This is an important message. Please ensure it is retained. Development without enhanced climate resilience is unsustainable. (Tony Weir, University of the South Pacific)	Revised text appears in section C-1.
824	64335	SPM	7	31	7	37	Question whether "co-benefits" is the correct term in this paragraph, particularly from a mainstreaming perspective (which is highlighted in next paragraph). Rather than discrete adaptation actions, would it not be more appropriate to discuss poverty alleviation actions and development that are more effective / sustainable because they have factored climate change into their design?? There are at least three different concepts addressed in this paragraph they could be separated out (for example, synergies between adaptation and DRR, which have been noted previously in the SPM). (Don Lemmen, Canada National Study)	This text, now in section C-1, has been revised for clarity.
825	68370	SPM	7	31	7	37	Helping resilience, wellbeing, livelihoods and the environment all in one, that is what we want to happen but not what is most likely to happen. More likely is that short term improvement leads to long term loss; and that there will be trade-offs between human and environmental health, especially when the human population keeps growing. (NETHERLANDS)	These topics are addressed in section C.
826	68371	SPM	7	31	7	37	Please note that reference paragraph 17.4.4 does not exist (NETHERLANDS)	Reference revised.
827	76166	SPM	7	31	7	37	On target, strategies for climate resilience complement overall development agenda building on disaster planning and other resource management efforts. (UNITED STATES OF AMERICA)	Thank you.
828	76167	SPM	7	31	7	37	Suggest that the authors consider including material from Chapte 7 here. Particularly lines 36-37 (UNITED STATES OF AMERICA)	This text has been shortened, making the linkage to Chapter 7 less relevant.
829	70345	SPM	7	31	7	39	The co-benefits could/should be included in the key message of the paragraph. Wen doing so, the two statements could be merged. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Co-benefits has been included in the bold finding.
830	62436	SPM	7	33	7	33	How is the term co-benefits being used here? In the mitigation context it is clear - either development benefits of climate actions or vice versa. It is less clear in this context. More generally the terminology of co-benefits across WGII and WG III should be harmonized. (INDIA)	Co-benefits are defined in the glossary.
831	76168	SPM	7	33	7	33	What does "the top 200 rivers" mean? Largest rivers? The text should explain the criteria for the selection of these 200 rivers. (UNITED STATES OF AMERICA)	Misplaced.
832	62437	SPM	7	33	7	37	It is highlighted that Adaptation action can provide significant co-benefits such as allevating proverty and enhancing development. However, specific actions to be implemented are not mentioned. Further, financial aspects are also not provided. Therefore, the same may be incorporated. (INDIA)	Revised text in section C-1 points to Table SPM.2, which provides examples of approaches. Financial aspects, to the extent possible, are also addressed in section C-1.
833	70980	SPM	7	34	0	0	Is it also possible to include co-benefits in developed countries here? (CANADA)	Statement has been revised to be generally applicable.
834	77268	SPM	7	34	0	0	Change Disaster Risk Reduction to Disaster Risk Management. Disaster Risk Reduction has good track record in saving lives. Resilience, however, requires further measures including for example safety net approaches and insurance in order to manage adverse knock on effects. This can be subsumed under the term disaster risk management (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
835	68372	SPM	7	34	7	34	It would be interesting to know the co-benefits for developed countries. (NETHERLANDS)	Statement has been revised to be generally applicable.
836	68373	SPM	7	34	7	35	Indicating statement as "high agreement" is not supported by the underlying material. Medium agreement would be more appropriate. Please also bear in mind that "resilience" is a frame to interpret empirical phenomena. Using "resilience" as a research frame is also still under discussion itself. See e.g. E.g.: Smith, A. and Stirling, A., 2010, The politics of social-ecological resilience and sustainable socio-technical transitions. Ecology & Society, vol. 15, iss. 1, art. 11. (NETHERLANDS)	This text has been removed.
837	67956	SPM	7	35	7	37	To give an example of the relationship between ecosystem resilience and adaptation, "Climate Change adaptation efforts ... to the migration of plants and animals" (chapter15 P3 L23-27) should be inserted in place of "Efforts to improve ecosystem resilience can benefit adaptation". (JAPAN)	This text has been removed. Table SPM.2 provides examples of ecosystem-based options.
838	66107	SPM	7	36	0	0	It is not very clear what is meant by medium confidence here: Does it refer to the possibility of improving ecosystem resilience benefitting adaptation or to the last sentence. The last sentence seems to be only an observation, which does not need to have statements of confidence. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	This text has been removed.
839	79807	SPM	7	36	7	36	There is too little focus on ecosystem-based adaptation and approaches in the SPM, this could be expanded here (see TS p. 24, l. 31-38). (NORWAY)	Ecosystem-based adaptation experience is discussed in section A-2, and Table SPM.2 provides examples of ecosystem-based options.
840	70244	SPM	7	36	7	37	How does ecosystem-based adaptation of food systems build climate resilience in cities? (SWEDEN)	This text has been removed.
841	79178	SPM	7	39	7	40	Not clear what the term 'Mainstreaming' really means in this context. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This term is no longer used.
842	79179	SPM	7	39	7	40	This sentence doesn't make grammatical sense. It should be re-phrased. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and a shortened version now appears in section C-1.
843	61756	SPM	7	39	7	42	This paragraph needs to be written in clearer English. There's a lot of jargon here which could be simplified. Also, why should maladaptation be reduced? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, and a shortened version now appears in section C-1.
844	66010	SPM	7	39	7	42	The term 'Adapatation Mainstreaming' is used quite differently by different scholars and practitioners. Please clarify the meaning you refer to at this place. It can mean, for example, that existing policies and instruments are to be adjusted (instead of introducing new ones). It might also mean (but then I would not agree to the general statement) that many policy sectors need a stronger cross-cutting coordination, or that no central organisations to push adaptation are needed (here I would disagree with the general statement as well). (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	This term is no longer used, and a shortened version of this text now appears in section C-1.
845	68374	SPM	7	39	7	42	There is a consistent belief among authors that mainstreaming is important, but there is little proof yet to state that it actually works. In other words, everyone claims there should be mainstreaming, but HAS it been mainstreamed on a larger scale? And has the effectiveness of this large scale mainstreaming operation been evaluated? No, and no. (NETHERLANDS)	This term is no longer used, and a shortened version of this text now appears in section C-1.
846	68375	SPM	7	39	7	42	Reference paragraph 17.4.4 does not exist - Should be 17.4.3 here (NETHERLANDS)	Reference revised.
847	70938	SPM	7	39	7	42	What is meant by "mainstreaming" ? (Fuglested Jan, CICERO)	This term is no longer used.
848	76169	SPM	7	39	7	42	It is not clear why Chapter 17 is referenced here; "mainstreaming" is not discussed in that chapter. (UNITED STATES OF AMERICA)	A shortened version of this text now appears in section C-1 in a broader paragraph that references Chapter 17.
849	76170	SPM	7	39	7	42	What would this mean for food security? Agroecological approaches to food production? (UNITED STATES OF AMERICA)	This text has been revised for clarity, and a shortened version now appears in section C-1.
850	79180	SPM	7	39	7	42	This assumes the reader knows what 'mainstreaming is' please make this clear or define it somewhere. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This term is no longer used, and a shortened version of this text now appears in section C-1.
851	60514	SPM	7	41	0	0	Add energy in "development and energy planning" (Hélène CONNOR LAJAMBE, HELIO International)	This text has been revised in section C-1, but interactions with energy planning in the context of mitigation are addressed in section C-2.
852	63927	SPM	7	44	7	44	"...include availability of resources", add: "and level of capacities". (GERMANY)	This text, now in C-1, has been revised, and the paragraph includes a broader description of constraints including those related to capacities.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
853	70940	SPM	7	44	7	45	This sounds a bit obvious as written now. Perhaps add why this is important. (Fuglestvedt Jan, CICERO)	Finding has been revised to communicate why understanding of constraints is important.
854	66067	SPM	7	44	7	47	This statement is very general, even regardless of the context of climate change. We wonder if there is material in the underlying chapters that would produce a paragraph with additional value. (FINLAND)	This finding has been expanded to include a more extensive description of constraints and their importance.
855	70981	SPM	7	44	7	47	Given that previous paragraph is on mainstreaming, should this paragraph be focused on "adaptation objectives" or on the role that adaptation plays in advancing development and other policy objectives? The phrase "vary significantly across regions and sectors and across social and temporal scales" does not convey anything that can be used by a decision maker. (CANADA)	Finding has been revised to communicate why understanding of constraints is important.
856	77360	SPM	7	44	7	47	Constraints to adaptation planning and implementation include availability of resources and uncertainties but also capabilities, this is ignored in the text. (Maria Jose Galarza, Ministerio del Ambiente del Ecuador)	This text, now in C-1, has been revised, and the paragraph includes a broader description of constraints including those related to capacities.
857	62438	SPM	7	45	7	45	Existing and emerging economics instruments may be defined. (INDIA)	These instruments are described in the rest of the paragraph.
858	63928	SPM	7	45	7	45	Please add after "future climate": ", disaster risk and the effectiveness of adaptation measures". (GERMANY)	This paragraph now mentions a related constraint: limited tools to monitor adaptation effectiveness.
859	79181	SPM	7	45	7	45	about current and future climate and disaster risk' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is forward-looking, and thus the phrase has been revised to include uncertainty about projected impacts.
860	68376	SPM	7	47	7	47	Paragraph 17.5.4 seems to be too specific or not relevant to the issue (NETHERLANDS)	Reference revised.
861	68377	SPM	7	49	7	50	Existing economic instruments can also frustrate adaptation. Regular discount-rates (5,5%, 4%) are classical examples: they make long term advantages of short-term investments in climate-proofing look irrelevant. New approaches are needed, e.g. significantly lower discount-rates, or discount-rates that decrease in time (approaches being developed in UK and France). (NETHERLANDS)	The revised paragraph states that risk financing mechanisms can also provide disincentives, cause market failure, and decrease equity.
862	68378	SPM	7	49	7	55	These instruments have been proposed but they have hardly been implemented and therefore they cannot be judged as being effective. Looking at the CO2 market, we even could say that economic instruments are likely to fail. (NETHERLANDS)	The revised paragraph states that risk financing mechanisms can also provide disincentives, cause market failure, and decrease equity.
863	63929	SPM	7	51	0	0	Delete "public-private finance partnerships," Argument: That PPPs are a useful incentive to foster adaptation is not proved in Chapter 17.3. There is no literature cited in 17.3 that give robust evidence. Therefore there is no reason to claim PPP on the list with "high confidence" economic instruments. (GERMANY)	This category has been retained, in line with the final draft of Chapter 17.
864	68379	SPM	7	52	7	53	Institutions often include norms and regulations, therefore norms and regulations are similar to institutional innovations. Also, Section 17.5 does not speak of institutional innovations but R&D subsidies. Therefore, we suggest to change "institutional innovations" by "R&D subsidies". Same comments are also mentioned for the TS, ExSum of Chapter 17 and the main text 17.5. (NETHERLANDS)	Institutional innovations deleted.
865	68380	SPM	7	54	7	55	Kinship networks and microfinance, even though relevant examples, are not covered in the main text of Chapter 17. [Microfinance in Malawi is only mentioned as an example, but microfinance per se is not enumerated as one of possible instruments] (NETHERLANDS)	These examples have been deleted.
866	63930	SPM	7	55	0	0	Change the confidence level to "high confidence". Reason: This text bases nearly completely on the Executive Summary of Ch. 17. There the confidence level is given with "high confidence". See Chapter 17 (P3 L29ff and L36ff). (GERMANY)	Medium confidence retained, in line with relevant paragraphs of the Chapter 17 Executive Summary.
867	77111	SPM	7	55	0	0	Also include index-insurance (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	Subsets of insurance have been removed due to space considerations.
868	79182	SPM	7	55	7	55	Re. the reference to 'global risk pools' – see my comment below on CH17, page 3, line 37-39 – the foundation for this reference in the SPM should name a global risk pool or be deleted. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	SPM text now refers to "risk pools."
869	70982	SPM	7	56	0	0	Suggest deleting "global" from list of risk pools. A similar statement to this exists in the key findings of chapter 17 but there are no examples provided in the underlying chapter (and the sentence which mentions global risk pools has no reference). If there are no examples, it should not be included alongside regional risks pools, which do exist and have proven to be effective. (CANADA)	SPM text now refers to "risk pools."
870	70983	SPM	8	2	0	6	Suggest adding "at different scales" after "full range of actions". (CANADA)	Text has been revised for clarity, removing this specific wording.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
871	58315	SPM	8	2	8	2	The mood of "can" is too strong. I suggest to replace "can" with "may". (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Finding has been revised to clarify the point.
872	77533	SPM	8	2	8	2	Write "Inappropriate intervention in one location ..." (SWITZERLAND)	Finding has been revised to clarify the point.
873	80602	SPM	8	2	8	2	It is too strong for the word "can" here, there is no direct evidence to prove "can". SUGGESTION: use "may". (Jiahua PAN, Chinese Academy of Social Sciences)	Finding has been revised to clarify the point.
874	79183	SPM	8	2	8	5	Comment: need to make the point that decisions that fail to consider the full range of interactions could be due to insufficient evidence and observations. There are also many other possible reasons behind maladaptation: corruption and influence, favouring inefficient projects for example. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This finding does not attempt to explain the reasons behind maladaptation, some of which are described in the underlying supporting chapters.
875	62439	SPM	8	2	8	6	This is a very sweeping generalization. In most cases, adaptation interventions have the potential to build overall adaptive capacity or overall reduce vulnerability. Intervention in one location or sector can lead to mal-adaptation in another sector only in exceptional cases. (INDIA)	Finding has been revised to clarify the point.
876	63931	SPM	8	2	8	6	Please provide examples for "such maladaptation" - otherwise this statement is lacking in content. Examples could be the introduction of monocropping or cash crops (Ch 14.7.3, P 25 L 33 to P 25 L 38), the building of large hydro-power plants leading to long-term hydro-dependency risks (Ch 22, P 46 L 1 to P 46, L 4) or livelihood diversification strategies increasing the risk of ecological change and the loss of ecosystem services (Ch 22, P 45 L48 to P 45 L 53). (GERMANY)	Space constraints do not allow for examples to be presented here, although they are provided in the underlying supporting chapters.
877	79808	SPM	8	2	8	6	We think that this statement could be more illustrative with the inclusion of an example. (NORWAY)	Space constraints do not allow for examples to be presented here, although they are provided in the underlying supporting chapters.
878	70601	SPM	8	3	8	3	Maybe include this word maladaptation in the glossary (NEW ZEALAND)	This term is included in the WGII glossary.
879	62440	SPM	8	4	8	5	There is a mention of vulnerability of location specific intervention to future climate change. The explanation provided may be more focussed. (INDIA)	Finding has been revised for clarity.
880	68381	SPM	8	5	8	5	It is impossible for a human being in a complex world to consider the full range of interactions, this will always fail. We consider a limited set of interactions as agreed within a specific social community. (Bounded rationality) (NETHERLANDS)	Finding has been revised for clarity.
881	68382	SPM	8	6	8	6	Please check if the reference to 14.7.2 should not be replaced by reference to subsection 14.7.3? (NETHERLANDS)	Reference revised.
882	63932	SPM	8	7	8	7	A paragraph on limits to adaptation is missing in this section. Please insert. Especially policy relevant would be the following: "Mitigation and adaptation are complementary strategies. Greater adaptation efforts will be required to achieve the objectives of actors if mitigation efforts are not successful in avoiding high magnitudes of climate change. There are, however, limits to the extent to which adaptation could reduce the impacts not avoided by mitigation, and residual loss and damage may occur despite adaptive action." (TS P 27 L 45-49). Also: "The physiological and/or ecological thresholds imposed by climate effectively represent "hard" limits in that no adaptation options can be implemented to enable sustainability once thresholds are exceeded. As a broad range of human values and managed systems are dependent upon ecosystems goods and services, "hard" limits in ecological systems have the potential to constrain or limit adaptation in socioeconomic systems." (TS P 28 L2-7). (GERMANY)	Findings on limits and on the extent to which adaptation and mitigation can reduce risks appear in sections B-1 and C-2.
883	63933	SPM	8	7	8	7	Due to policy relevance: Insert shortened paragraph on transformation from TS (P 27 L 4-12). (GERMANY)	Transformation is discussed in section C-2.
884	61757	SPM	8	8	0	0	While the distinction between climate responsibility (up to 2040) and climate options (beyond 2040) is useful, the word "options" suggests that before 2040 there are no options - replace "options" by "outcomes" or "diversity" or "realizations". The first time the terms are used they have to be defined, maybe on page 2. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
885	61758	SPM	8	8	0	0	In Box 4 SUM Figure 1 RCP4.5 and 8.5 are used - please add to the caption that 4.5 is not necessarily compatible with the 2 degree target. Please include the result for RCP2.6 in the figure. This is essential for policy makers since RCP2.6 is more consistent with the 2degree C target. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This material in section A-3 now contrasts RCP 2.6 and 8.5.
886	63326	SPM	8	8	0	0	SPM BOX 4 Simplify the text, highlight key messages. (IRELAND)	This material has been simplified and incorporated into section A-3.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
887	63934	SPM	8	8	9	4	Box SPM.4: 1) We appreciate the approach to explain concept of scenarios and models to characterize the future in a way that is comprehensible to non experts. However, in order to increase confidence and trust in future projections, it would be good to add more information on the parameters characterizing these scenarios and the ranges of values chosen. In addition, more information on how the new RCP and the old SRES scenarios compare, and on the models is needed. As RCPs are mentioned for the first time in the SPM an additional, explanatory sentence should be added. Further, it could be considered to include the global mean surface temperature increases by the end of the century for each RCP (5-95% range for each pathway as presented in WGI, Ch 12, P 3 L 12-16). 2) The concept of the era of climate responsibility / option is not clear enough. Does the first mean that there are no options, and the latter that there is no responsibility? The time frames should be defined more clearly. The header of Table SPM.4 is a bit clearer, but more information on the reasoning behind this concept is needed. 3) It is not fully clear how this box on characterizing the future fits into the section on decisionmaking in a complex world. Possibly it would fit better in the section on future risks and choices (P 9 starting L13). (GERMANY)	This material has been simplified and incorporated into section A-3. The second paragraph of section A-3 introduces the eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes. Figure SPM.4 presents time series of projected temperatures under RCP 2.6 and 8.5 for the 21st century. While section A-3 provides a short discussion of scenarios, space constraints do not allow extended discussion here. Further details about the RCP scenarios, SRES comparisons, and the climate models used can be found in the underlying chapters of Working Group I and II.
888	78131	SPM	8	8	9	4	box sp4 could be moved to the subitem C) future risks (Christiano de Campos, Petroleo Brasileiro SA)	This material has been simplified and incorporated into section A-3 as the precursor to the future risks section.
889	70984	SPM	8	10	8	21	Box SPM.4. 1. This is the first introduction in the SPM of the terms era of climate responsibility and era of climate options. Canada has submitted general comments advising that these terms be replaced with more clear, objective terms. Also, in Lines 18-20, the first sentence excludes climate model projections from having anything to say about near-term climate change. In searching through the referenced sections for justification for this, it seemed to be linked most closely to the discussion in section 21.5.3. and specifically FAQ 21.4. Suggest simplifying the references if that is the case. Also, FAQ 21.4 includes a discussion of the way climate projections can bring information to bear on near-term decision-making; therefore the first sentence should be revised to be more consistent with FAQ 21.4. (CANADA)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes. The material regarding climate model projections and near-term projections has been removed.
890	61759	SPM	8	10	8	33	The eras of climate responsibility and climate options are mentioned several times in the SPM and TS. They should be defined and described more clearly. It is not clear what they mean and why they are important to policymakers. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
891	80313	SPM	8	10	9	4	Box SPM.4 is entitled "Characterizing the Future" and mentions trends in vulnerability, exposure and climate as important components. Yet, Figure Box SPM.4 only presents maps of physical climate variables, but no information on trends in vulnerability and/or exposure and thus presents a very uncomplete characterization of the future in terms of impacts. The Box would substantially benefit from more information about vulnerability and exposure. (Gian-Kasper Plattner, IPCC WGI TSU)	This material has been incorporated into section A-3, which also presents findings about characterizing future vulnerability and exposure. The findings emphasize that future trends in vulnerability and exposure are difficult to project with any degree of precision.
892	66109	SPM	8	12	0	16	The approach of eras of climate responsibility and options is very interesting and could be illustrative of the challenges of climate change to decision making. However, the two eras, the concepts, in my opinion are not very clearly explained in the SPM. Here, era of climate responsibility is referred to, but the concept is explained (and not fully there either) only later, in the caption of Table SPM 4 (and in Figure SPM 5). (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
893	62441	SPM	8	12	8	13	Remove '!' after the word option (INDIA)	This text has been removed.
894	66070	SPM	8	12	8	13	The final part of the sentence should be changed because in its current general form the claim is not necessarily true. For example the following rephrasing: "..., in specific circumstances current decisions may narrow future options, in other words decision makers should always try to strive for maximum attainable flexibility in future desicions. " (FINLAND)	This text has been removed, and the first two paragraphs of section A-3 discuss points relevant to the suggested rephrasing.
895	79809	SPM	8	12	8	13	This is a very firm statement. Is it always the case that current decisions narrow future options? If this is not the case, please consider to include "may", so that it reads "... development, current decisions may narrow future options." (NORWAY)	This text has been removed, and the first two paragraphs of section A-3 discusses relevant points.
896	70602	SPM	8	12	8	16	Simplify and shorten this paragraph to " The decisions and actions taken now will have a strong effect on future options for adaptation and mitigation of climate change impacts." What does "the era of climate change responsibility" mean? (NEW ZEALAND)	This text has been revised and incorporated into the second paragraph of section A-3, which also introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
897	76171	SPM	8	12	8	21	The concepts of an eras of climate responsibility and climate options seem to appear here de novo. Even in the corresponding chapter text, this is a confusing and non-intuitive characterization. Suggest the authors carefully reconsider the use of this terminology. If they choose to retain the terminology, please include clear definitions. (UNITED STATES OF AMERICA)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
898	79184	SPM	8	12	8	26	No evidence nor confidence mentioned. Is the statement, purely the authors judgement? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Section has been revised for clarity, and confidence language has been included for the relevant findings.
899	79185	SPM	8	12	8	55	Not sure why e.g. "Scenarios are a vital part of managing uncertainty" is bolded as a key message - the whole para is valuable to readers. Similar in other areas. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	First sentence bolding is the format followed throughout the SPM. The paragraph related to scenarios has been revised to provide more information in the bold finding.
900	70292	SPM	8	13	8	13	Current decisions do not narrow future options. If that would be the case then the options today would be very narrow because of all the past decision that already have been made throughout history. This is of course not true. Instead, current decision *change* future options. In this case this means that the probability of which of the presented scenarios that actually will play out. Furthermore, if current trends of fossil fuel consumption will even increase (not impossible) then we may see that current high RCP scenarios may have to be complemented with even higher ones, and the same argument at the low end of the FF consumption/radiative forcings). (SWEDEN)	This text has been removed, and the first two paragraphs of section A-3 discuss relevant points.
901	77534	SPM	8	13	8	13	Delete the words "past" and "current": "... as a result of emissions and socioeconomic trends ..." (SWITZERLAND)	Text revised along these lines, now appearing in A-3.
902	66108	SPM	8	14	0	0	It would be useful to define what is meant by outcomes here and possibly give examples. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	This text has been removed, and the first two paragraphs of section A-3 discuss relevant points.
903	78096	SPM	8	14	8	16	Era of climatic responsibility and Era of climatic options are not defined and time-constrained (Philippe MacClenahan, Synergies Environnement)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
904	63327	SPM	8	15	8	15	The term "era of climate responsibility" is introduced here and used extensively in the subsequent discussion, along with the term "era of climate options". The terms are not transparent, and are not well defined in the text and the word "responsibility" itself can be considered normative and emotive. The use of "era" is normally used to refer to long (geological) timeframes. Alternative wording might be "period of necessary adaptive response". The second "era" might be termed the "period of flexible adaptive response". Use of this type of wording would give a better indication of the difference in the adaptation required to cope with unavoidable climate change, and adaptations which may be avoided if mitigation of emissions is achieved. (IRELAND)	This text has been revised for clarity. The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
905	66069	SPM	8	15	8	15	We notice a relatively new term "era of climate responsibility". Specifically, in the SPM it is problematic to use terminology that is not consistent with the language used in the UNFCCC. For more comments see our comments for Figure SPM 5. (FINLAND)	This text has been revised for clarity. The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
906	79186	SPM	8	15	8	16	Climate responsibility' and 'climate options' are terms used throughout the SPM but there does not appear to be a clear or consistent definition. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
907	80476	SPM	8	15	8	16	While I like the innovative framing around options and responsibility, I am a bit confused as to what these mean: responsibility makes sense and suggests urgency in tackling warming. While options to me has a positive connotation, it largely refers to an options space that is shrinking with warmin and lack of acted on responsibility. I wonder whether this can be brought out better such as by mentioning options and necessities. (Reinhard Mechler, INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
908	62677	SPM	8	18	8	19	What's the "weather and seasonal forecasting of climate variability"? How could people do this kind of forecasting? (RONGSHUO CAI, Third Institute of Oceanography)	This text has been removed.
909	65008	SPM	8	18	8	21	I considered this sentence confused: "Model projections become increasingly relevant....recognizing that uncertainties about future vulnerability and exposure also increase over time". What does it mean? Models will diminish uncertainties? (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
910	68383	SPM	8	18	8	21	In chapter 21, to which these statements of the SPM refer, it is not explicitly mentioned that 'uncertainties about future vulnerability and exposure also increase over time'. Reconsider giving another reference for these statements. Consider also adding Section 21.5.2 as a reference. (NETHERLANDS)	The last paragraph of section A-3 addresses these topics, drawing from the Chapter 21 final draft.
911	79811	SPM	8	18	8	24	We think that this paragraph contains some of the very key statements in the report. The bold statement as it now is written is too general and should be extended or substituted by information with respect to regional changes. (NORWAY)	Section A-3 has been revised to better highlight findings relevant to these points.
912	65655	SPM	8	19	8	19	"era of climate responsibility". Better as "the current era when responsibility for climate change is necessary". Bit vague as currently written. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
913	62442	SPM	8	20	8	21	The sentence may be restructured (INDIA)	The last paragraph of section A-3 addresses these topics, drawing from the Chapter 21 final draft.
914	62443	SPM	8	22	8	23	Details of the extent of impacts are only provided for developing countries. However, specific examples are not provided for developed and major developing countries (INDIA)	Misplaced
915	68384	SPM	8	23	8	23	It is common practice to use scenarios and we have no better options but if this will help to manage the future, only the future can tell. It is seen as helpful, but we cannot be sure that it actually is. (NETHERLANDS)	The paragraph on scenarios in section A-3 has been revised to clarify these points.
916	77535	SPM	8	23	8	23	Do not use the word "vital" but "integral": "Scenarios are an integral part ... " (SWITZERLAND)	Text revised to remove "vital."
917	77536	SPM	8	23	8	23	Write "Scenarios are tools for characterizing ..." (SWITZERLAND)	Text revised to include "tools."
918	62444	SPM	8	23	8	26	This section on scenarios is too generic to be of any utility to policy makers (INDIA)	The paragraph on scenarios in section A-3 has been revised to improve clarity.
919	65602	SPM	8	23	8	26	It would be helpful to have here a reference to the main scenarios used in this work. If these are the RCPs then lay readers need some explanation of these in concrete terms. Ideally this would form part of this document. (David Flint, Cass Business School)	The paragraph on scenarios in section A-3 has been revised to include mention of the scenarios used in assessed literature (RCP and SRES scenarios). Figure SPM.4 illustrates climate outcomes under the highest and lowest RCP scenarios.
920	79812	SPM	8	23	8	26	It seems somehow confusing that the objective is to address "managing uncertainty" "uncertainty due to climate change". The objective should be to address the possible impacts due to climate change by risk management, and then the uncertainty is part of a (NORWAY)	The paragraph on scenarios in section A-3 has been revised to clarify these points.
921	79187	SPM	8	24	8	24	socio-economic (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	"Socioeconomic" is also proper spelling.
922	62445	SPM	8	26	8	28	Linkage may be established between key findings and explanations. (INDIA)	The text has been revised to ensure clarity and logical flow.
923	56981	SPM	8	26	8	49	Africa is missing in the examples given thus raising the question of regional balance in reporting with regard to climate change issues (KENYA)	This comment is misplaced. But please note that Africa is included in Figure SPM.2A, section A-2, and section B-3.
924	62446	SPM	8	28	8	29	The sentence appears to be out of place and has no relationship with previous sentences. (INDIA)	The paragraph on scenarios in section A-3 has been revised to clarify the logical flow.
925	57687	SPM	8	28	8	33	Please also include the projections of 21st century global mean temperature change for the different RCP scenarios, as given in the WG1 report. (Jouni Räisänen, University of Helsinki)	Figure SPM.4 illustrates climate outcomes under the highest and lowest RCP scenarios.
926	65009	SPM	8	28	8	33	I think it is important to clarify how SRES and RCP are combined. From the sentence, It seems RCPs are replacing SRES. (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	RCPs are replacing SRES scenarios.
927	65888	SPM	8	28	8	33	Some mention on the relationship between SRES and RCP could clarify the paragraph. It is suggested to complement Box SPM.4 Figure 1 referred here with a graph showing the projected change in global temperature along XXI century for different RCP (for example WGI AR5 FAQ 12.1, Figure 1) (SPAIN)	Figure SPM.4 illustrates climate outcomes under the highest and lowest RCP scenarios, including time series over the 21st century.
928	70245	SPM	8	28	8	33	In this context, where the mixture of results based on SRES and on RCP is highlighted, it would be helpful to provide a brief summary of how the two scenario generations relate to each other (based on emissions, GCM results...) Or at least provide a pointer to where such a comparison is done. The higher RCPs do not really need to reflect different levels of mitigation (unless one includes "no mitigation". The RCPs were designed to span both the SRES scenarios (non-mitigated) and mitigation scenarios. (SWEDEN)	This text has been revised for clarity, but space constraints in the SPM do not allow for extended discussion of the comparison between SRES and RCPs. This is described in the underlying chapters of the report.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
929	78132	SPM	8	28	8	33	can we make a correlation between RCP and SRES in the SPM as done in chapter 1 lines 44 to 49? (Christiano de Campos, Petroleo Brasileiro SA)	Space constraints in the SPM do not allow for expanded discussion of the comparison between SRES and RCPs.
930	79188	SPM	8	28	8	33	We strongly suggest saying something about implications of different scenarios in terms of amount of warming and /or giving plain language descriptors for what they mean in terms of policy/society, since references to radiative forcing aren't very accessible to non-scientists. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and Figure SPM.4 illustrates climate outcomes under the highest and lowest RCP scenarios.
931	79813	SPM	8	28	8	35	We believe it would be helpful if some key results from the scenarios and the key findings in Figure 1 is described in the text and not only the change in radiative forcing. (NORWAY)	Figure SPM.4 presents climate outcomes under the highest and lowest RCP scenarios, including time series over the 21st century, which help illustrate the eras introduced in the second paragraph of section A-3 and the different timeframes for the benefits of mitigation and adaptation.
932	60329	SPM	8	30	8	31	Also add temperature estimations from WGI (best estimate + uncertainty range) here. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	Figure SPM.4 illustrates climate outcomes under the highest and lowest RCP scenarios, including time series over the 21st century. The WGI SPM presents temperature ranges for all RCPs.
933	69899	SPM	8	30	8	31	More precisely the radiative forcing levels at 2100, not the whole 21st century. (John Caesar, Met Office Hadley Centre)	This text has been removed.
934	78097	SPM	8	30	8	33	This information does not add much to the overall understanding for policy makers since it is not easy to relate the 3 levels of radiative forcing to policy options for examples (Philippe MacClenahan, Synergies Environnement)	The Working Group III report assesses such linkages.
935	79189	SPM	8	31	8	32	Correspondance Box SPM.4 Figure 1 in page 35 is written Box SUM... Make correction in page 35 accordingly. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Correction made.
936	79190	SPM	8	31	8	32	And box SPM 4. Should compare RCP 2.6 with 8.5 to give full range of levels of mitigation and therefore temperature and rainfall changes. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This material in section A-3 now contrasts RCP 2.6 and 8.5.
937	79191	SPM	8	35	8	35	This should read "SUM. 4" not "SPM. 4", or otherwise it doesn't make sense. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Correction made.
938	85188	SPM	8	35	9	2	The comparisons conceal the fact that there has been no change in temperature for the past fifteen years and this fact is concealed. 1986-2005 seems to have been chosen because it has the highly unusual upward blip caused by the El Niño event of 1988 and the different sampling in the 1906-1925 sequence (Vincent Gray, Climate Consultant)	Figure SPM.4 (note new numbering) illustrates observed climate change and projected climate change under the highest and lowest RCP scenarios, including time series over the 20th and 21st century.
939	80314	SPM	8	35	9	4	Box SPM.4, Figure 1: We suggest to delete Box SPM.4, Figure 1. It presents a selection of projections and maps of physical climate variables which are comprehensively assessed in the WGI AR5. The WGI AR5 chapters and the WGI AR5 Annex I: Atlas of Global and Regional Climate Change Projections provide a careful, comprehensive assessment of the material that is non-comprehensively covered in this box. It seems to us that it therefore is not necessary to elevate some sort of reassessment of this WGI AR5 material at the level of the SPM in WGII report. In addition, we note that the maps present time periods, stippling methods etc. that are not consistent with what is being presented as assessment conclusions in WGI AR5 and thus carry substantial potential for confusion and misinterpretation for the user of the entire AR5. Finally, the Figure and the assessment of the physical climate variables presented are not a single time referred to or used in the rest of the SPM. It thus seems to us that they could thus easily be deleted here without losing anything, and reference to the WGI AR5 be added. (Gian-Kasper Plattner, IPCC WGI TSU)	This figure, now as Figure SPM.4, is intended to provide an encapsulation of the WGI assessment, as required to understand assessment in WGII, consistent with the plenary-approved outline for the WGII contribution to the AR5. Observed and projected changes in the physical climate are central to the WGII assessment of observed impacts and future risks. Figure SPM.4 presents observed climate change and projected climate change under the highest and lowest RCP scenarios, including time series over the 20th and 21st century that are important for illustrating how risks evolve over the 21st century and the different timeframes for the benefits of mitigation and adaptation. The observed and projected maps illustrate the regional patterns of these changes. All panels of the figure use the same data presented in the WGI SPM. Differences in display choices have been made to best inform the audience for the WGII contribution.
940	62659	SPM	8	36	8	36	Box SUM 4. Fig 1. Comment: The word "SUM" should be "SPM". This mistake also appears in the figure labels themselves on pages 35 and 36 (Anirudh Singh, University of the South Pacific)	Correction made.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
941	79192	SPM	8	36	8	36	change to Box "SMP". (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Correction made.
942	68386	SPM	8	36	8	55	This explanation seems inadequate for a summary. Explain what we see and refer elsewhere for the methodology (NETHERLANDS)	The figure (now Figure SPM.4) and caption have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
943	66068	SPM	8	36	9	2	Caption for Box SUM. 4 Figure 1 should be simplified and shortened. It should illustrate what the reader is supposed to see in the figure. (FINLAND)	The figure (now Figure SPM.4) and caption have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
944	68385	SPM	8	36	9	2	The current text of Box 4 is hard to understand. Could it be transformed in such a way that the essence is clear? (NETHERLANDS)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
945	68387	SPM	8	36	9	2	The caption is unclear. There is a reference to the WGI in AR5, but this caption in the SPM is difficult to understand without the further calculations and weighed means and standard deviations. (NETHERLANDS)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
946	70247	SPM	8	36	9	2	The meaning of "less than twice the standard deviation" etc. should be explained in more easy-to-understand terms. Also, the ">66%" and "more than 2/3" are the same and it would not seem to be necessary to state both several times as is now done. Also, it is a bit curious that it is suggested (lines 43-44) that also when there is no statistically significant change in the annual mean level, signals may be found on time scales of months and down to days. (SWEDEN)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
947	79193	SPM	8	36	9	2	Comment: very technical and overly-complicated explanation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
948	79194	SPM	8	36	9	2	The description at 'Box SUM.4 Figure 1' is difficult to understand. Perhaps when the figure is inserted it will help? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
949	79195	SPM	8	36	9	2	I found this figure & legend particularly confusing. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
950	62678	SPM	8	37	8	37	What does the CRU in Box SUM. 4 Figure1 refer to? Should we tell readers if CRU refers to "The Climatic Research Unit (CRU) at the University of East Anglia (UEA) has, since 1982, made available gridded datasets of surface temperature data over land areas and averages for the Northern and Southern Hemispheres and the Globe." Meanwhile, the (2) Gray, (3) Colors with white circles in Box SUM.4 Figure 1, A, could not be found, although they could be easily found in Figure 1, B. Furthermore, what does the former 20 in "the 20 20-year periods" want to indicate? 20 samples? Could we give a more easier understany ways for policy makers and non-technical readers? If we could, then SPM may attract more and more readers and play a much more important key role. (RONGSHUO CAI, Third Institute of Oceanography)	The figure and caption (now Figure SPM.4) have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance. CRU is no longer mentioned.
951	70246	SPM	8	37	8	37	Which set of CRU data? (SWEDEN)	This panel of the figure (now Figure SPM.4) has been revised to match the dataset used in the WGI SPM.
952	65656	SPM	8	41	8	41	Delete extra 20? Or say "twenty 20-year periods" if that is what is meant. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The figure and caption (now Figure SPM.4) have been revised for clarity.
953	62447	SPM	8	55	8	55	This para may be shifted to page 8 as 1st paragraph (INDIA)	Such changes will be made when the document is finalized for publication.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
954	63328	SPM	8	55	9	2	Box SPM 4 Figure 1. The caption is incomprehensible. The Figure should be split into two Figure 1 Temperature, Figure 2 Precipitation. This will make it easier to discuss the important findings within each figure. The maps should be labelled (i to v). If possible the "Late 20th century" maps should include land and ocean, not just land, to facilitate direct comparison with the model analyses. The 4 classes need to be defined here in much more direct terms. The discussion of white and gray areas is particularly obtuse and the discussion needs to be presented in more direct language. Perhaps use "White areas show no significant change in more than 66% of models", and "Gray indicates areas where more than 66% of models indicate significant change is likely, but fail to provide agreement on the potential nature of these changes", Detailed discussion of the definitions of significance etc is better placed in the TS and relevant chapters. (IRELAND)	The figure and caption have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance. The precipitation panel has been removed.
955	63329	SPM	8	55	9	2	Box SPM 4 Figure 1. The caption needs to be clarified to communicate the key messages for policymakers. The technical details of the figures are more appropriately presented in the Technical Summary. The key message is apparently "there is a very high level of consistency between climate model projections for medium to high emissions trajectories leading to greatly increased risk of significant (or dangerous) climate impacts with important differences in magnitudes of impacts emerging at regional scales. (IRELAND)	The figure and caption have been revised for clarity, and the second paragraph of section A-3, where the figure is introduced, explains its relevance.
956	61770	SPM	9	0	0	0	Table 1 has very arbitrary examples. E.g., under fresh water resources issues in Europe also flood risks in central Europe and water scarcity and drought problems in southern Europe should be mentioned. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table has been removed. The rationale for what has been included is discussed in Chapter 18.
957	65889	SPM	9	0	13	0	Section C.i. Sectoral and Regional Risk. Some key sectors are missing, such as transport, tourism, infrastructure, soil. (SPAIN)	Section B presents the conclusions of the assessment on sectoral and regional risks, corresponding to the chapters of the underlying assessment. Section B-2 presents conclusions relevant to infrastructure and other economic sectors, and risks for infrastructure networks are highlighted in section B-1. Conclusions about carbon storage by ecosystems are also presented in section B-2.
958	79196	SPM	9	6	0	0	Could the key risks (mentioned on p13) be brought forward to this title heading? I imagine these are of most interest to readers. At the moment they appear after an analysis of the entire range of risks. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Key risks are now presented in section B-1, before the detailed presentation of sectoral and regional risks.
959	63935	SPM	9	6	13	45	The first para on page 6 of Section C on risks and adaptation announces information on "the sensitivity to the magnitude and range of climate change ... ". This promise should be put into practice in subsection C.i: please add more detailed information for each sector and region on how different mitigation pathways affect risks and adaptation options and needs. (GERMANY)	Such differentiation is made where possible throughout section B (previous section C). Section B-1 also includes a paragraph highlighting the potential for mitigation to substantially reduce risks in the second half of the 21st century. Section C-2 also includes a paragraph on limits to adaptation and the relationship with mitigation and the magnitude and rate of climate change.
960	68388	SPM	9	8	9	10	Assessment of the full range of potential future impacts in a non-differentiated way also blurs perspectives for action. In the field of safety against flooding and fresh-water supply in The Netherlands the full range is considered but in a differentiated way. A distinction is made between 'plausible scenario's' and 'small change – high impact – scenario's'. The first category of potential futures is used to develop measures. (NETHERLANDS)	This statement is now included in section A-3 in the paragraph on decisionmaking under uncertainty.
961	59777	SPM	9	8	13	45	There is limited discussion on risks to public asset infrastructure and the services they provide eg rail, roads, ports, health care facilities, public schools and public houses etc (AUSTRALIA)	What can be said about such risks based on the underlying assessment is presented in the three subsections of section B. See, for example, the bullet in section B-1 on infrastructure networks and the sections on urban areas and economic sectors in section B-2.
962	61760	SPM	9	9	9	29	Articulate explicit findings for both water scarcity&droughts, and floods. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Conclusions on floods and water scarcity are now presented separately.
963	65657	SPM	9	11	9	11	suggest "time frames for benefits from mitigation and adaptation". Better? (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This specific text has been removed, and the timeframes for the benefits of mitigation and adaptation are now presented in section A-3 with revised wording.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
964	80315	SPM	9	12	9	12	What are the "eras of climate responsibility and climate options"? Are you referring to a time period in the future? If so, which time period? Definitions are needed for these two terms. (Gian-Kasper Plattner, IPCC WGI TSU)	Text revised for clarity, and these eras are introduced in section A-3.
965	63936	SPM	9	13	9	13	Section C is entitled "... and potential for adaptation". Therefore an overarching statement regarding the possible corridor of opportunities (adaptive space) should be given before synthesizing sectoral as well as regional risks. This can be done by quoting completely the first para of TS Ch. B.iii. (P 24, L15-22) "Strategies and actions can be pursued now .... removing barriers to the migration of plants and animals." and the first para of TS Ch. B.iv. (P 27, L20-25) "Limits to adaptation emerge ... may reduce the resilience of natural systems to adapt to a changing climate." (GERMANY)	An overarching statement regarding the timeframes for the benefits of adaptation and mitigation is presented in section A-3, and the referenced statements appear in section C-1 in the context of principles for effective adaptation.
966	63937	SPM	9	14	0	0	Please adjust the wording of heading C.i. to the heading C.i. in the TS. (GERMANY)	Sections B-2 and B-3 (formerly section C.i) present sectoral and regional risks and potential for adaptation in separate sections in both the SPM and Technical Summary.
967	78141	SPM	9	14	0	0	I missed some assessment focused on physical infrastructure for the society. Ports, pipelines, transmission lines from chapter 10. (Christiano de Campos, Petroleo Brasileiro SA)	What can be said about such risks based on the underlying assessment is presented in the three subsections of section B. See, for example, the bullet in section B-1 on infrastructure networks and the subsection on economic sectors in section B-2.
968	70985	SPM	9	14	13	17	For the most part, presentation of sectoral risks is at such a high level that individual paragraphs say little that is of relevance to decision-making. A type of summary figure or table would likely be more effective. At minimum, there is need for a consistency of style between these paragraphs. (CANADA)	The presentation of sectoral risks and potential for adaptation reflects the findings of the underlying assessment. These are summarized in a variety of ways, for example in the listing of key risks in section B-1 and in the reasons for concern presented in Box SPM.4. Section B-3 also provides a table of key regional risks in a standard format. A similar table of sectoral risks is presented in the Technical Summary.
969	79197	SPM	9	14	13	26	The level of detail in the different sections varies massively here - e.g. lots of detail for flooding, very little for freshwater resources. The more detailed sections are the most useful. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The presentation of sectoral risks and potential for adaptation, now in B-2, reflects the findings of the underlying assessment, for which the level of detail available varies. A balance has been sought between focus on compact presentation of policy-relevant findings and providing explanatory details, more of which can be found in the Technical Summary and underlying chapters.
970	79810	SPM	9	14	13	45	This section would benefit from having more concrete quantification of the risks. (NORWAY)	Such concrete quantification has been presented in section B to the extent possible based on the underlying assessment.
971	77365	SPM	9	16	0	0	The effect of glacier retreat (e.g. Technical Summary, p. 30, lines 38-43) should also be discussed in the SPM under "Freshwater resources". (Ken Takahashi, Instituto Geofísico del Perú)	This material has been carefully considered, but has not been included due to length consideration.
972	76172	SPM	9	16	9	16	There is no mention of groundwater (beyond groundwater recharge). It would seem to warrant some coverage here. (UNITED STATES OF AMERICA)	This section, now in B-2, now discusses changes in groundwater resources.
973	67957	SPM	9	16	9	29	In addition to discussion about water scarcity, in terms of volume, the paragraph should include discussion about projected risks regarding the quality of water, which will be greatly impacted by increased floods occurring or by changing water temperature as a consequence of climate change. A suggested addition is: "Water quality changes are linked to warming, changes in rainfall, and climate-related erosion and deforestation. Projections under climate change scenarios show a risk of deteriorating water quality for municipal supply, even with conventional treatment." (Chapter 3 page 3 lines 38-41) (JAPAN)	This section, now in B-2, now discusses water quality.
974	78134	SPM	9	18	0	0	After when climate change affects substantially hydrological regimes? (Christiano de Campos, Petroleo Brasileiro SA)	Text has been revised for clarity. The relevant material is now in B-2.
975	58316	SPM	9	18	9	18	The mood of "substantially" is too strong due to projection still have greater uncertainty. I suggest to use the word of "considerable". (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Text has been revised for clarity. The relevant material is now in B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
976	62448	SPM	9	18	9	18	"would change" to be replaced by "would imply changes" (INDIA)	Text has been revised for clarity. The relevant material is now in B-2.
977	80603	SPM	9	18	9	18	It is too strong for the word "substantially" here, there are uncertainties about the projection. SUGGESTION: use "considerable". (Jiahua PAN, Chinese Academy of Social Sciences)	Text has been revised for clarity. The relevant material is now in B-2.
978	57781	SPM	9	18	9	24	What is the time frame for this statement? One is needed....months, years, decades, ? (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	Timeframes for the statements in this section, now in B-2, have been specified to the extent possible.
979	80316	SPM	9	18	9	24	We suggest to make it very clear which part of the statement is a citation of the WGI AR5 report and which part of the statement is the WGII assessment. Perhaps the line of cite to WGI AR5 Chapter 12 can be added into the paragraph at the appropriate place. It's unclear to us if you are referring to WGI AR5 for, e.g., the part on "large changes in the frequency of floods". If so, this seems wrong as to our knowledge Chapter 12 from WGI AR5 does not conclude that there will be large changes in the frequency of floods (and neither does the SREX). (Gian-Kasper Plattner, IPCC WGI TSU)	In general, citations to WGI are presented with the specific statement supported. In this case, it is the last sentence in the paragraph, so the reference has been included in the list of chapter sections for the whole paragraph to avoid two adjacent footnotes. The relevant material is now in B-2.
980	65658	SPM	9	20	9	20	Replace "controlled" by "determined". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been removed.
981	58769	SPM	9	20	9	21	Current statement that "projected climate changes imply large changes in the frequency of floods" does not provide a sign for the change. Recommendation is to clarify the statement to provide a sign and geographical variability to this projection, as well as the underlying uncertainty. (William Landuyt, ExxonMobil Research and Engineering)	This text has been revised for clarity, and the Technical Summary presents a figure (Figure TS.6) providing projections of regional variations and ranges of outcomes across models. The relevant material is now in B-2.
982	77282	SPM	9	20	9	21	"large changes in the frequency of floods" - say whether these are increases, decreases, both in different places, or whatever! (William Ingram, Met Office)	This text has been revised for clarity, and the Technical Summary presents a figure (Figure TS.6) providing projections of regional variations and ranges of outcomes across models. The relevant material is now in B-2.
983	79198	SPM	9	20	9	21	"Changes in frequency of floods" - how much, which direction and where? Needs to have more information to be of interest to the policymaker. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and the Technical Summary presents a figure (Figure TS.6) providing projections of regional variations and ranges of outcomes across models. The relevant material is now in B-2.
984	64887	SPM	9	21	9	21	floods as a consequence the agricultural adjustments processes would severely be threatened; hence the agricultural production would be significantly reduced. (Md Younus, Lecturer, School of the Environment, Flinders University, Research Fellow, Adelaide University, South Australia)	This goes beyond what can be supported by the assessment.
985	61761	SPM	9	21	9	23	Please quantify the statements. How big are the effects under various climate change scenarios? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised to provide quantification to the extent possible. The relevant material is now in B-2.
986	76173	SPM	9	22	9	22	There is a reference here to freshwater influence on food security, but no reference to Cpt 7. Please consider adding such a crossreference. (UNITED STATES OF AMERICA)	This text has been removed.
987	68389	SPM	9	23	9	23	Reference to 3.2.5 (Waterquality) seems to be not related to the content of the previous statements . Please consider removing it. (NETHERLANDS)	Reference revised. The relevant material is now in B-2.
988	77112	SPM	9	26	0	0	Also include "disaster or forecast-based contingency planning" as a technique (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This is encompassed by the categories mentioned. The relevant material is now in B-2.
989	61763	SPM	9	26	9	27	Explain what is meant by flexible solutions. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This topic is discussed in general in the first paragraph of section A-3.
990	61762	SPM	9	26	9	29	The barriers to adaptive water management fail to mention the lack of investment in data networks. In chapter 3, as well as others such as chapter 22 on Africa, the limited availability and exchange of data is stated as being a limitation. This should be brought to the fore in those chapters, as well as here in the summary. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed. This is addressed in general terms in the paragraph on adaptation constraints in section C-1.
991	68390	SPM	9	26	9	29	Barriers occur for a reason, it is a democratic process (NETHERLANDS)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
992	68391	SPM	9	26	9	29	Primary barrier identified in literature is Institutional Inertial (C. Pahl-Wostl; e.g. "A conceptual framework for analysing adaptive capacity and multi-level learning processes in resource governance regimes" in Global Environmental Change, Vol. 19 (2009) 354–365) - there is a general call for a new paradigm in water governance which recognizes and addresses institutional inertia through adaptive management enhanced via a deeper understanding of the sociological aspects of our environmental systems - It is paramount that this be recognized and discussing in the IPCC reports. Communication => knowledge creation => learning => adaptation. (NETHERLANDS)	This text has been removed. Constraints are addressed in general terms in section C-1.
993	79031	SPM	9	26	9	29	I am missing legal, statutory and inter-national barriers here. What about conflicts because of contested borders, delineations, competition because of upstream water use increases etc.? (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This text has been removed. Constraints are addressed in general terms in section C-1.
994	79814	SPM	9	26	9	29	In this chapter one should include the possibility of no-regret improvements, and options for both mitigation and adaptation e.g. through ecosystem-based measures (c.f TS p. 4) (NORWAY)	Low-regrets measures are now mentioned. The relevant material is now in B-2.
995	77558	SPM	9	28	9	28	Write: "Barriers include lack of technical and institutional capacities ..." (SWITZERLAND)	This text has been removed. Constraints are addressed in general terms in section C-1.
996	63938	SPM	9	28	9	29	The last sentence of this finding should be highlighted (bold) to underline the complementarity of mitigation and adaptation. (GERMANY)	This text has been removed. The potential for mitigation to reduce risks is discussed in section B-1.
997	65010	SPM	9	28	9	29	The sentence "Barriers include lack of technical capacity,....." is not clear. What is the relation with the sentence before? (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	This text has been removed. Constraints are addressed in general terms in section C-1.
998	77449	SPM	9	28	9	29	This sentence does not fit into the context here. Due to its key importance it should be inserted somewhere more suitable. (Sven Harmeling, Germanwatch)	This text has been removed. The potential for mitigation to reduce risks is discussed in section B-1.
999	78100	SPM	9	28	9	29	The link between low emission pathways and reduced damage costs in relation to freshwater management is not explicated enough, may add an explanatory sentence (Philippe MacClenahan, Synergies Environnement)	This text has been removed. The potential for mitigation to reduce risks is discussed in section B-1.
1000	68392	SPM	9	29	9	29	Please verify if the reference to section 3.7.2 here appropriate? (NETHERLANDS)	Reference revised. The relevant material is now in B-2.
1001	79199	SPM	9	29	9	29	and costs of adaptation, compared with those associated with a high emissions scenario.' or similar (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1002	62449	SPM	9	31	0	0	Terrestrial and inland water ecosystems are combined in every sentence and paragraph in this section. Suggest separation of terrestrial ecosystems and inland water systems into 2 separate sections since the issues addressed are different. (INDIA)	These ecosystems have been considered together, based on the structure of the underlying chapters.
1003	79815	SPM	9	31	0	0	We propose that the heading is changed to "Terrestrial systems and inland water systems" (NORWAY)	Heading has been changed to "Terrestrial and freshwater ecosystems" for clarity. Please see B-2.
1004	65890	SPM	9	31	9	31	Replace "systems" by "ecosystemes" (SPAIN)	Heading has been changed to "Terrestrial and freshwater ecosystems" for clarity. Please see B-2.
1005	76174	SPM	9	31	10	3	Consider expanding the scope of this section to at least note the links between ecosystems and human well being. There is, for example, no mention of pollinators and pollination as an ecosystem services. Impacts on ecosystems are important in their own right. This is not a request to address all ecosystem impacts, but a core theme in ecosystem science is the links among different ecosystems (e.g., how watersheds affect streams and lakes), and a recent emphasis has been on ecosystem services upon which humans depend. Can the discussion of ecosystems be framed and maintained in a broader scope, to show how climate change impacts on ecosystems have wide-ranging consequences beyond the initial "point of impact?" (UNITED STATES OF AMERICA)	Linkages between impacts on ecosystem services and human systems are highlighted in section B-1.
1006	77269	SPM	9	33	0	0	Consider: Reverse order (start with climate change) (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	This text has been removed.
1007	79816	SPM	9	33	9	36	It would be more informative if you describe in this key finding also the impacts of climate change or clarify what role climate change may have. E.g. by using the examples related to species and forest mentioned in the text below. (NORWAY)	This text has been removed.
1008	68393	SPM	9	33	9	37	RCP 6.0 is called both a high-warming scenario and mid-range scenario. Which of these two is meant? In the first sentence it is named under 'high-warming scenario' and in the following sentence under 'mid-range climate change'. (NETHERLANDS)	Text has been revised for clarity. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1009	69900	SPM	9	33	9	37	In the first sentence high-warming scenarios are referred to citing RCP6.0. In the following sentence RCP6.0 is listed as an example of mid-range climate change. Whilst this is not necessarily incorrect on account of the projected temperature ranges associated with each RCP, it could be open to misinterpretation. (John Caesar, Met Office Hadley Centre)	Text has been revised for clarity. Please see B-2.
1010	63939	SPM	9	33	9	42	It should be added that there is a great interspecific variability in phenological responses to climate change, leading to changes in interspecific interactions and to increased asynchrony (see Ch 4, P 24 L 18-42 and Ch 23.6.4.). Even if species would be able to move fast enough and reached suitable climates, changed species interactions poses an additional threat on them. (GERMANY)	This point has been considered, but has not been included due to length considerations.
1011	57782	SPM	9	34	9	34	Are freshwater and terrestrial ecosystems different? Seem the same to me. (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	These ecosystems have been considered together, based on the structure of the underlying chapters.
1012	67958	SPM	9	35	9	37	RCP6.0 is mentioned in both descriptions " high-warming scenarios (e.g., RCP6.0 and 8.5)" and "mid-range rates of climate change (i.e., RCP4.5 and 6.0)". These seem to be inconsistent because RCP6.0 is included in both ranges. (JAPAN)	Text has been revised for clarity. Please see B-2.
1013	70248	SPM	9	36	9	36	Here, the RCP6.0 is given both as a high warming scenario and a mid-range one. Unclear. (SWEDEN)	Text has been revised for clarity. Please see B-2.
1014	60442	SPM	9	36	9	42	Very technical text. Explanatory note on translation to GCM average end of century temperatures could be useful. RCP 6.0 described as "high warming scenario" and "mid-range rate of climate change" Terminology is inconsistent and possibly overlapping. (DENMARK)	Text has been revised for clarity. Please see B-2.
1015	61764	SPM	9	36	9	42	This text needs to include text on the impacts of RCP2.6 compared with RCP6 and 8.5. This is essential for policy making. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text and the corresponding Figure SPM.5 present what can be said about differentiation across RCP scenarios. Please see B-2.
1016	65659	SPM	9	37	9	37	Replace "unable" with "not". Again species do not consciously track climate change. "quickly" better than "fast". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	These changes have been considered, but the existing wording is preferred.
1017	77537	SPM	9	37	9	37	Write: "... enough to adapt to suitable climate change" (SWITZERLAND)	The term "track" is used in the context of species movement compared with the velocity of climate change, and its usage has been clarified in the text. Please see B-2.
1018	70346	SPM	9	38	9	38	Reference needed for Fig SPM.3 (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This figure (now SPM.5) is referenced in the text. Please see B-2.
1019	79817	SPM	9	38	9	40	This seems to be an very important finding. It would be very useful if it is specified whether this is valid for only the highest RCPs, or if it is valid for all RCPs. (NORWAY)	This text has been revised for clarity. Please see B-2.
1020	65660	SPM	9	39	9	39	"increased risk of local and global extinction for" Local extinctions are likely at range edges for many species; global extinctions will occur but are less likely. Check this is said in main body of chapter. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This statement is referring specifically to risk of global extinction of species.
1021	79818	SPM	9	39	9	40	Consider to exchange "modification" with "loss and fragmentation", and include "pollution" in the list, to generate "... such as habitat loss and fragmentation, over-exploitation, pollution and invasive species..." (NORWAY)	Pollution has been added to the list. Modification has been retained in this list, but habitat fragmentation is mentioned in the last sentence of the paragraph. Please see B-2.
1022	58809	SPM	9	40	9	42	I think that the sentence here "Forests may be more sensitive to future climate change than reported in AR4, and tree mortality and forest dieback could become a problem in may regions much sooner than previously anticipated (medium confidence)." is exaggerated. There are no comparison between the AR4 and this draft in the chapter 4. Also the sentence "tree mortality and forest dieback could become a problem sooner than previously anticipated" has no sound background evidence how these tree mortality is related to climate change. (Tetsuya Matsui, Forestry and Forest Products Research Institute)	The comparison to AR4 has been removed, and the timeframe for the statement on tree mortality and forest dieback has been clarified. Please see B-2.
1023	60260	SPM	9	40	9	42	It is not very useful to use the AR4 as a baseline for comparing projections, as readers will need to go back to AR4 to understand this sentence. It would be much more useful to phrase the sentence in relation to the specific projections from AR4. (AUSTRALIA)	The comparison to AR4 has been removed, and the timeframe for the statement on tree mortality and forest dieback has been clarified. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1024	67959	SPM	9	40	9	42	Suggest to replace the sentence here, "Forests may be more sensitive to future climate change ... than previously anticipated (medium confidence)", with "Future climate change impacts on tree mortality and tree ranges could be large (XX confidence), but experimental, observational, and modeling studies also indicate that there is low confidence associated with mode-based projections of the details of these impacts", which is the second sentence of the corresponding paragraph in the Technical Summary (page 34, lines 38-41). (Note: The degree of confidence "XX" in the parentheses should be lower than "high" to match the comment for the lines 36-41 in page 34 of TS and lines 44-49 in page 5 of Chapter 4, since "high" confidence as in the TS does not seem to be appropriate.) (JAPAN)	This text has been revised to specify the intended timeframe, and its confidence level has been adjusted accordingly. Please see B-2.
1025	70986	SPM	9	40	9	42	The use of confidence language with soft words like 'may be' and "could become" reduce the meaning of this sentence. Here, the text says forest may be more sensitive to future climate change than reported in the AR4 and that tree mortality and dieback could become a problem, and medium confidence is assigned to the statement. Suggest it would be more effective to use phrasing such as "forests are assessed to be more sensitive...and tree mortality and dieback will occur sooner than anticipated (medium confidence)". The confidence statement indicates that there is uncertainty about the conclusion which should eliminate the need for 'soft verbs'. This issue occurs in several places throughout the SPM. (CANADA)	The comparison to AR4 has been removed, and the wording of the statement on tree mortality and forest dieback has been clarified. Please see B-2.
1026	61765	SPM	9	41	9	41	delete "tree mortality" (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, retaining the term "tree mortality." Please see B-2.
1027	64888	SPM	9	42	9	42	Urban land use change is being very active in peri-urban regions as a consequence adapt mosaic of these regions need to be strengthened in future climate change regimes. (Md Younus, Lecturer, School of the Environment, Flinders University, Research Fellow, Adelaide University, South Australia)	Management actions that can increase ecosystem adaptability are addressed in the first paragraph of this subsection. Please see B-2.
1028	57783	SPM	9	44	9	45	The virtually certain assessment seem way too confident to me. There are no direct measurements of this term. It is inferred from residual techniques on global averages of atmosphere and ocean storage changes and on emissions, all which have large error bars. I would think "likely" is much more justifiable. (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	This text has been removed.
1029	63330	SPM	9	44	9	45	It would be useful to indicate current understanding as to what have been the main drivers for this carbon storage to terrestrial and freshwater ecosystems, and which systems are most active in this context. (IRELAND)	This text has been removed.
1030	79200	SPM	9	44	9	46	Suggest that the carbon storage being offset by changes in land use is significant and should also be in bold as a key finding. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This material has been revised, and the adjusted text relevant to this point is presented in the second paragraph of the subsection, again as nonbold given the logical flow of the information. Please see B-2.
1031	58675	SPM	9	44	9	48	This para is not suitable for here since it has no close linkage with the context. I suggest move this para to part A (chunfeng wang, State Forestry Administration, China)	This material has been revised, and what remains is relevant to future risks and thus has been retained in this section. Please see B-2.
1032	63940	SPM	9	44	9	48	Has the total global storage increased or the specific storage (C/kg matter)? Will there be saturation? (GERMANY)	This text has been removed.
1033	67960	SPM	9	44	9	48	This paragraph describes recent increase in carbon storage in land and freshwater ecosystems, and also argues the possibility of loss back to the atmosphere. However this paragraph does not describe about mechanisms, whereas it might help future mitigation design. Please discuss the mechanisms here. (JAPAN)	The text on recent changes in carbon storage has been removed. The material on vulnerability to loss to the atmosphere summarizes the relevant drivers. Please see B-2.
1034	70347	SPM	9	44	9	48	Not all studies show that the ter. Biosphere becomes a sink, as more or less suggested in the tekst. But it is tright that studies show that the current sink will decrease and eventually turns into a C source (see 2013 paper of Le Quere in Earth Syst. Sci. Data Discuss.) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The revised text explains that stored carbon is vulnerable to release back to the atmosphere. Please see B-2.
1035	79819	SPM	9	44	9	48	It may look as a contradiction between the text in bold and the rest of the paragraph. Please clarify this paragraph e.g. by clarifying if the last sentence in the para is about the future. (NORWAY)	The text on recent changes in carbon storage has been removed. The revised text explains that stored carbon is vulnerable to release back to the atmosphere. Please see B-2.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1036	80317	SPM	9	44	9	48	Is this consistent with the assessment from Chapter 6 of WGI AR5? (Gian-Kasper Plattner, IPCC WGI TSU)	The text on recent changes in carbon storage has been removed. The revised text explains that stored carbon is vulnerable to release back to the atmosphere. Please see B-2.
1037	80604	SPM	9	44	9	48	It is inappropriate to put this conclusion here, there is no strong connection with the adjacent context . Thus it is not suitable to appear in part C. SUGGESTION: put it in part A. (Jiahua PAN, Chinese Academy of Social Sciences)	This material has been revised, and what remains is relevant to future risks and thus has been retained in this section. Please see B-2.
1038	68394	SPM	9	45	9	45	Should the word 'increased' not be replaced by 'decreased'? (NETHERLANDS)	This text has been removed.
1039	56982	SPM	9	46	9	55	Include as many regions as possible in providing these examples so as to depict a regional balance in reporting (KENYA)	Improved balance of regional examples has been achieved in the revised summary for policymakers.
1040	60330	SPM	9	47	9	48	What is the time scale involved and the under which scenario does this result hold? (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	The revised text explains that stored carbon is vulnerable to release back to the atmosphere, which is not tied to any one scenario or timescale. Please see B-2.
1041	76175	SPM	9	47	9	48	Vulnerable not only to climate and land use change but to stochastic events that characterize ecosystems (e.g., disease outbreaks, physical disturbance). (UNITED STATES OF AMERICA)	Ecosystem degradation has been added to the list of drivers. Please see B-2.
1042	78135	SPM	9	48	0	0	Until when the carbon in land and water ecosystems will continue to increase and where? When can become a source, if someday? This increase is an effect of global warming? Can it be considered positive or negative in terms of biodiversity? (Christiano de Campos, Petroleo Brasileiro SA)	This text has been removed. The revised text explains that stored carbon is vulnerable to release back to the atmosphere. Please see B-2.
1043	78136	SPM	9	48	0	0	The first and 2nd sentences could be moved to section A.i observed impacts and vulnerabilities (Christiano de Campos, Petroleo Brasileiro SA)	This text has been removed.
1044	64336	SPM	9	50	0	0	Delete phrase "but not eliminate" as it is obvious that no action could eliminate exposure to climate-driven ecosystem impacts. (Don Lemmen, Canada National Study)	"Exposure" has been changed to "risks" to clarify the point. Please see B-2.
1045	61766	SPM	9	50	9	50	delete "exposure to" (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	"Exposure" has been changed to "risks" to clarify the point. Please see B-2.
1046	65891	SPM	9	50	9	53	It is suggested to group as "ecosystem based adaptation" the set of management actions mentioned to increase ecosystem adaptability (SPAIN)	The expanded list was retained to better explain the categories of actions intended here. Please see B-2.
1047	67961	SPM	9	50	9	53	Current text is confusing and ask to please show it in an understandable way. The concept is understandable, however, it is very hard to imagine "how to implement it". (JAPAN)	These topics are discussed in more detail in the underlying chapter (4, in this case).
1048	79820	SPM	9	50	9	53	Consider this addition to the text "area protection and increased connectivity between areas" so that it reads "... assisting translocation, manipulating disturbance regimes, area protection and increased connectivity between areas". (NORWAY)	These items are covered by reduction of habitat fragmentation. Please see B-2.
1049	63941	SPM	9	52	9	53	Since assisted translocation is an adaptation option which is only meaningful in some carefully selected cases and may have unforeseeable negative consequences (see chapter 4.4.2.4.) it should either not be listed in this paragraph (proposal to delete the term here) or should be only mentioned with a qualifier e.g. in exceptional cases. (GERMANY)	These options are presented as examples that are not intended to imply suitability to all situations. The first paragraph of section C-1 makes this point in general terms, highlighting the context specificity of adaptation.
1050	61767	SPM	9	53	9	53	Manipulating disturbance regimes (e.g. fire/pest suppression) may substitute small disturbances with large scale catastrophic disturbances. Furthermore, many of these manipulations are NOT in line with the maintainance of functional evolutionary processes. These are important trade-offs (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	These options are presented as examples, which could be implemented effectively or ineffectively. This point is made in section C-1 in general terms, which highlights the context specificity of adaptation and the potential for maladaptation.
1051	78101	SPM	9	53	9	53	Will "Assisting translocation, and manipulating disturbance regime" be understandable for on specialits? (Philippe MacClenahan, Synergies Environnement)	Space constraints in the SPM do not allow for expanded discussion of these terms, which can be found in the underlying chapter text.
1052	63942	SPM	9	55	9	55	Could you give an explanation of "tipping points"? (GERMANY)	This term has been replaced by more descriptive wording. Please see B-2.
1053	67962	SPM	9	55	9	55	The wording "tipping points" is a somewhat ill-defined concept. Suggest that a definition be added in a footnote or a reference to relevant academic sources in order to make it clearer for policy makers and to avoid any unnecessary controversy over tipping points. (There is no example of reference in the SPM of AR4 by any WG). (JAPAN)	This term has been replaced by more descriptive wording. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1054	62081	SPM	9	55	9	56	It would be helpful to include examples of where "tipping points" or "threshold effects" have occurred (and what their differences are). Eutrophication is one example of tipping points that decision makers may be able to relate to. A useful graph can also be found in M Scheffer et al. (2012). "Anticipating Critical Transitions." Science 338(6105): 344-348. The recent paper by A. Michalak et al. (2013).("Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions." PNAS 110(16): 6448-6452.) gives insights into the role climate change may play in harmful blooms. (Joann de Zegher, Stanford University)	This term has been replaced by more descriptive wording. Please see B-2. This is a forward-looking section, and discussion of observed effects is presented in section A-1.
1055	77453	SPM	9	55	9	56	mentioning of the issue of tipping points important as large-scale long-term risks (Sven Harmeling, Germanwatch)	This point is made in section B-1.
1056	58766	SPM	9	55	10	3	Unclear why the high level statement suggests high confidence in climate change pushing ecosystems to cross tipping points while the underlying examples (e.g. Arctic, Amazon) are both low confidence. Recommendation is to provide underlying examples for which there exists high confidence in a climate change push across a tipping point or reconsider whether the high level statement is high confidence. (William Landuyt, ExxonMobil Research and Engineering)	This text has been revised, with more clearly linked confidence language. Please see B-2.
1057	61768	SPM	9	55	10	3	Not only tipping point phenomena will lead to significant carbon cycle impacts. Also incremental processes are likely to have significant effects. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The vulnerability of carbon stored in the terrestrial biosphere is presented as a general point that is not only linked to tipping point phenomena.
1058	61769	SPM	9	55	10	3	There is an inconsistency between the "high confidence" in crossing a tipping point and the "low confidence" of the examples. Delete the bi-stability example of the Amazon forest as the evidence base might be related to a false representation of physiological processes in the respective model(s). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised, with more clearly linked confidence language. Please see B-2.
1059	70348	SPM	9	55	10	3	How is it possible that the bold message has high/medium confidence, whereas the underlying example have a low confidence. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been revised, with more clearly linked confidence language. Please see B-2.
1060	70603	SPM	9	55	10	3	The bolded statement is "medium confidence", but both examples are "low confidence". Are there examples with higher confidence that could be used instead? (NEW ZEALAND)	This text has been revised, with more clearly linked confidence language. Please see B-2.
1061	79201	SPM	9	55	10	3	This seems slightly at odds - high confidence in tipping points, but limited confidence in examples. Are there any examples with higher confidence? Any observed changes we can include? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised, with more clearly linked confidence language. Please see B-2. Observed changes are presented in section A-1.
1062	65661	SPM	9	56	9	56	"functioning" better than function. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	Function has been retained for clarity. Please see B-2.
1063	70249	SPM	9	56	9	56	Please explain the meaning of "abruptly" as used here. (SWEDEN)	Space constraints in the SPM do not allow for expanded discussion of this term, which can be found in the underlying chapter text.
1064	70987	SPM	9	56	10	1	Does this statement need to convey a time frame for the increased carbon emissions associated with natural ecosystems crossing tipping points? Is the message that carbon emissions will increase during the transitional period when there is ecosystem disruption? If so, that should be made clear. In some cases, once a new ecosystem is established, this carbon flux to the atmosphere could reduce again. (CANADA)	This text has been removed.
1065	78102	SPM	10	0	10	0	Figure SMP 3: For (A) Rates of climate change for global land areas, "°C/year" should be added in the text of the legend for reading clarity (Philippe MacClenahan, Synergies Environnement)	This panel of the figure has been removed in simplifying the figure. Please see B-2.
1066	79821	SPM	10	1	10	1	Consider replacing "will" by "may". (NORWAY)	This text has been removed.
1067	56983	SPM	10	1	10	12	Include as many regions as possible in providing these examples so as to depict a regional balance in reporting (KENYA)	Improved balance of regional examples has been achieved in the revised summary for policymakers.
1068	70988	SPM	10	2	0	3	Are these example of recent changes or potential future changes? It is not made clear in the text. (CANADA)	Text has been revised for clarity. Please see B-2.
1069	63331	SPM	10	2	10	2	Why is the statement regarding an abrupt change in albedo in arctic system consider "low confidence"? There is high confidence that the sea-ice element of the arctic system is in decline, and it's impact on regional albedo is likley to be significant. Consider revising the confidence level. Perhaps the "low confidence" is in regard to other element of the arctic system. (IRELAND)	This text has been revised, with more clearly linked confidence language. Please see B-2.
1070	65662	SPM	10	2	10	2	Insert a conditional as confidence low "Examples could include". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been revised, with more clearly linked confidence language. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1071	80318	SPM	10	2	10	3	Do the medium and low confidence given for the examples listed apply to the possibility that these tipping points will be crossed and thus these changes in the boreal-arctic system or Amazon forest will happen, or do they apply to the significant increase in carbon emissions to the atmosphere IF tipping points will be crossed? Please clarify. In addition, please consult Chapter 6 of WGI AR5 assessment to ensure consistency (or explanation of differences) between WG reports. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been revised for clarity, and the text on carbon emissions has been removed. Please see B-2. Consistency with WGI Chapter 6 has been checked.
1072	70250	SPM	10	3	10	3	Does this align itself with WG I findings on the expectation of impacts on the Amazon forest? (SWEDEN)	The conditions under which this risk could materialize are described in the Technical Summary and the underlying chapter text.
1073	76176	SPM	10	4	10	21	Suggest tha the authors consider discussing the study illustrated in Figure 3.2 in this passage. It is worth using as an illustrative example, and warrants inclusion in the text. (UNITED STATES OF AMERICA)	Misplaced.
1074	63332	SPM	10	5	0	0	Figure SPM 3 This figure is complex and difficult to interpret. The key message for policymakres should be clear. (IRELAND)	This figure (now SPM.5) has been substantially simplified for clarity.
1075	79202	SPM	10	5	10	25	This figure is very crowded and difficult to read. Perhaps the 3 panels (a-c) could be separated a little more. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure (now SPM.5) has been substantially simplified for clarity.
1076	77538	SPM	10	6	10	6	Write: "... species to adapt to climate ..." (SWITZERLAND)	The term "track" is used in the context of species movement compared with the velocity of climate change, and its usage has been clarified in the text. Please see B-2.
1077	62450	SPM	10	6	10	7	It is mentioned that surface wind and sea level increases the risks associated with coastal and ocean based industries. Examples may also provided to support the statement. (INDIA)	Comment refers to page 11. This text has been removed.
1078	64337	SPM	10	6	10	25	Consider ways to simply the diagram and caption (it takes up a lot of space and is not easy to interpret). Diagram is most relevant as a contribution to the relevance of Article 2 discussion ("allow ecosystems to adapt naturally"). Is there a way to quantify the color coding? If not then it is of little value (what is distinction between "some" and "many"?). The key question relates to the relationship between increasing impacts and increasing temperature, and are there any inflection points in this distribution? The concept of species tolerance is missing from present diagram. Also misleading with reference to mountain ecosystems as it does not capture concept that current high elevation species might lose their climate space entirely. Symbol for birds should be moved to top of diagram and stated as "off scale". (Don Lemmen, Canada National Study)	This figure (now SPM.5) has been substantially simplified for clarity.
1079	70251	SPM	10	6	10	25	Rates of "warming" would seem more correct than rates of "climate change" as the latter refers to more than just temperature. (SWEDEN)	The point here is about the broader context of the rate of climate change.
1080	79203	SPM	10	6	10	25	The description at 'Figure SPM.3' is difficult to understand. Perhaps when the figure is inserted it will help? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure (now SPM.5) has been substantially simplified for clarity.
1081	80319	SPM	10	7	10	10	Figure SPM.3: would it make sense to refer to WGI AR5 (chapters 2, 5, 11, 12) when presenting the rate of climage change from historical observations and future projections based on CMIP5? While rates of change are not specifically assessed in WGI AR5, it would be good to clarify that, e.g., the projections from which these rates are derived from are consistent with what WGI AR5 presents in its assessment (assuming that they are consistent, of course). (Gian-Kasper Plattner, IPCC WGI TSU)	WGI Chapter 12 is referenced in the underlying chapter text.
1082	70252	SPM	10	10	10	10	How are the upper and lower ranges constructed? (there is a lot of structure in these lines...) (SWEDEN)	This figure (now SPM.5) has been substantially simplified for clarity.
1083	76177	SPM	10	10	10	13	Velocity should have both speed + direction. Is the direction implied (i.e., poleward)? Please be explicit. (UNITED STATES OF AMERICA)	This figure is focused on global averages, but this is discussed in the underlying chapter text.
1084	65663	SPM	10	11	10	11	"range of species" better than "species ranges". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been removed.
1085	63333	SPM	10	12	10	13	The fast rate which mounian species can adapt by moving up-hill tends may overstate adative capacity within these systems. For example, there is less space available, so population densities are increased (greater pressure on resoruces), alternatively the species might maintain a steady population density and so signficantly decline in absolute terms. Also, there would be greater exposure at greater heights, and issues of slope and available soil, and less connectivity. (IRELAND)	Given these complexities, climate velocity in mountain areas has been removed from the figure.
1086	70253	SPM	10	24	10	25	Probably too much unnecessary detail here. (SWEDEN)	This has been clarified in the figure labeling (see Figure SPM.5).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1087	76178	SPM	10	27	10	39	As was noted for Chapter 5: increased coastal inundation is not just due to RSLR.....it has also increased because of the increased precipitation associated with coastal meteorological events. This is important as increased flooding due to increased precipitation will increase further with increases in RSLR. Rhese concepts need to be connected. (UNITED STATES OF AMERICA)	This is a forward-looking statement focused on the effects of sea level rise. Table SPM.1 includes an entry on coastal inundation due to sea-level rise and intensified precipitation events.
1088	66028	SPM	10	29	10	29	Taking into account that in the vocabulary of the report included in the SPM the term "impact" only refers to "negative or adverse impacts", the adjective "adverse" could be deleted here. On the contrary, it would be need to distinguish along all the report between negative and positive impacts. (Maria-Carmen Llasat, University of Barcelona)	Impacts, as defined in Box SPM.2, can be positive or negative.
1089	68395	SPM	10	29	10	29	In Chapter 5, only one reference is given that states that coastal systems and low lying areas increasingly experience adverse impacts. That cannot be stated as High confidence. (NETHERLANDS)	The traceable account for this confidence statement is provided in the referenced chapter sections.
1090	70989	SPM	10	29	10	29	Suggest "regional" replace "relative" here (i.e. regional sea level rise), which may be easier for readers to understand. (CANADA)	This term has been removed.
1091	78103	SPM	10	29	10	29	Why "Coastal systems and low-lying areas" rather than writing "low-lying coastal systems" in this section since it addresses essentially flooding ? (Philippe MacClenahan, Synergies Environnement)	This is the title of the underlying chapter.
1092	76179	SPM	10	29	10	30	Suggest broadening this sentence to include coastal erosion and sedimentation in addition to submergence and flooding. This is consistent with Chapter 5 material on coastal erosion. For example: "Due to relative sea-level rise, coastal systems and low-lying areas will increasingly experience adverse impacts associated with coastal erosion and sedimentation, submergence, and flooding from extreme coastal high water levels (high confidence)." The paragraph could also be expanded by a sentence or two to include examples, such as a) up to 3/4 of world coastline is rocky or cliffed (Cpt 5 pg15/L38) and/or b) Cpt 5 pg43L37-39 demonstrates that coastal response is the product of complex drivers and processes beyond simple submergence. (UNITED STATES OF AMERICA)	Coastal erosion has been added to the revised statement. The paragraph also highlights non-climate drivers of the risks. Please see B-2.
1093	57382	SPM	10	29	10	39	Don't forget small islands. Sea level rise (coupled with storm surges etc) can inundate atoll nations with salt water to an extent that makes them uninhabitable, even well short of GMST increases of 4 degrees (compare box SPM.5). (Tony Weir, University of the South Pacific)	Small islands are now mentioned explicitly. Please see B-2.
1094	61771	SPM	10	29	10	39	The statement on sea level rise is limited to effects until 2100. The risk of even more serious (and unstoppable) consequences beyond that warrant mention. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The timeframe beyond the 21st century is now included in the revised paragraph. Please see B-2.
1095	85185	SPM	10	29	10	39	There ius no evidence relative sea level is currently rising. Modern equiopment including GPS levelling finds that many plaes are showing little change since the year 2000. Past behaviour is subject to a range of inaccuracies and biases. (Vincent Gray, Climate Consultant)	Such topics are assessed by Working Group I.
1096	68396	SPM	10	30	10	33	The list seems to be limitative however excessive groundwater extraction is an additional as reason for increasements of risks. (NETHERLANDS)	This is embedded in the categories listed, and is discussed in the underlying chapter.
1097	68398	SPM	10	33	10	33	It states: Population exposed to the 100-year coastal flood. This sentence does not make clear that it is about the coast experiencing a risk of a flood with a 100 years returnperiod. Suggestion: 'The population exposed to coastal floods occurring once every hundred years..' (NETHERLANDS)	This text has been removed.
1098	68397	SPM	10	33	10	34	Suggestion: substitute "100-year flood" with "flood with a yearly 1% probability". (NETHERLANDS)	This text has been removed.
1099	79822	SPM	10	33	10	39	We think this text would be more informative if it was given a better distinction, if possible, between changes caused by climate change and changes due to other development trends. (NORWAY)	Available projections are discussed in the underlying chapter, but a clear overall conclusion on this has not been drawn.
1100	79204	SPM	10	34	10	34	"socio-economic" and comment: why socio-economic development only? Why not with sea-level rise too? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1101	70990	SPM	10	34	10	35	A projection "without adaptation" does not seem to make sense as there will be adaptation, even if it is entirely reactive. It should be possible to make a stronger statement here, even if it is limited to current exposure. (CANADA)	This text is focused on the effects based on current exposure. Please see B-2.
1102	63943	SPM	10	34	10	36	"without adaption" is a very general statement, please specify. In addition, please add an estimate of the overall number of people affected by SLR in E, SE and S-Asia. (GERMANY)	This text is focused on the effects based on current exposure. Please see B-2. Available projections are discussed in the underlying chapter, but a clear overall quantitative conclusion on this has not been drawn.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1103	68399	SPM	10	35	10	35	The SPM states: '..the majority of people projected to be affected by coastal flooding and displacement due to inundation and erosion will be in East, Southeast and South Asia'. Chapter 5 (page 24, line 52) only states: Most countries in South, South East and East Asia are particularly vulnerable to sea-level rise. This does not automatically imply that they are affected by displacement or erosion, as it is stated in the SPM. Suggestion: skip this sentence from the summary. (NETHERLANDS)	This wording has been clarified. Please see B-2.
1104	76180	SPM	10	35	10	46	This statement about relative risk needs to be carefully qualified. In Cpt 5 pg 24, it is indicated that Asia will continue to have the largest population exposed to flooding. Yet on pg 25, it further explains that while the rapid economic growth in this region fuels an increase in exposure, that growth also fuels adaptive capacity. If there is not room enough in the SPM to include the more complete story, the projection that the majority of exposed population will continue to live in Asia could be left out. (UNITED STATES OF AMERICA)	The current draft more clearly indicates that this text refers to the effects without adaptation. Please see B-2.
1105	79205	SPM	10	36	10	38	1.26m is outside of the range of likely sea-level rise by 2100 from WG1 so is inconsistent. Why has this number been used? Needs a caveat or explanation if this is going to be kept in. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1106	59778	SPM	10	36	10	39	It is not clear what this statement is referring to. In Chapter 5, the only reference to a study of impacts of SLR of 1.26m (Table 5.5), is Hinkel et al, 2011 which covers only Africa, not globally, and therefore does not support this statement. (AUSTRALIA)	This text has been removed.
1107	63944	SPM	10	36	10	39	It would be good to include the confidence level for the cost estimation (low?) or if that is not possible to include a sentence pointing out the high level of uncertainty of cost estimations (similar to or referring to the explanation in SPM P 17 L 11 to L 15). (GERMANY)	This text has been revised to reflect the uncertainty in specific quantitative estimates. Please see B-2.
1108	65390	SPM	10	36	10	39	It is noted that the assumption of sea level rise of 1.26m in 2100 is of a height for which WG I could not provide any likelihood to occur; such assumptions therefore does not seem to be very policy relevant at all. It is suggested to include in addition another example with a more realistic assumption with respect to sea level rise in 2100, e.g. 100cm or 85cm and to qualify the current example as a kind of sensitivity analysis. (Klaus Radunsky, Umweltbundesamt)	This text has been removed.
1109	67963	SPM	10	36	10	39	According to the IPCC AR5 WG1 SOD, global mean sea level rise by 2100 is projected only 0.76 [0.56-0.96] m above 1986-2005 average (even) under the RCP8.5 (high-warming) scenario, instead of 1.26 m. The source of this larger value is not indicated in the referred sections [5.3, 5.4.3, 5.5.3]. Since it is inappropriate to use 1.26m as an assumed value of impact assessment in SPM without any explanation, it is recommended to use the impact of global mean sea level rise which is assessed under the conditions of sea level rise consistent with the projected range of IPCC WG1 AR5 SOD. If that is not possible, it is recommended to clearly describe that 1.26m global sea-level-rise is beyond the range projected in the IPCC WG1 AR5 SOD, and to give an appropriate justification for using such large value. (JAPAN)	This text has been removed.
1110	70604	SPM	10	37	0	0	Can this very precise sea-level rise scenario be justified? (NEW ZEALAND)	This text has been removed.
1111	57688	SPM	10	37	10	37	Make clear that 1.26 m is well above the sea-level rise projections given in the WG1 report. (Jouni Räisänen, University of Helsinki)	This text has been removed.
1112	57784	SPM	10	37	10	37	1.26 m SLR by 2100 - Error bars are needed as well as some caveats about the ice sheet melt term in this estimate. (Ronald Stouffer, Geophysical Fluid Dynamics Laboratory/NOAA)	This text has been removed.
1113	63945	SPM	10	37	10	37	Where does the SLR of 1.26 m come from, to which scenario does it pertain? (GERMANY)	This text has been removed.
1114	66071	SPM	10	37	10	37	Please indicate whether 1.26 m sea-level rise is a low, medium or high estimate. (FINLAND)	This text has been removed.
1115	68400	SPM	10	37	10	37	The 1.26 m sea-level rise in 2100 seems very difficult to "fact-check" back to WGI. In WGII (Ch5) the number (1.26 m rise in 2100) is indeed mentioned in a couple of instances as a very extreme scenario (as far as I can see the effect of ground subsidence must have been taken into account). In contrast, in WGI (Table 13.5, Ch13), none of the scenarios produce a rise anywhere close to 1.26 m by 2100, even with the already considerably large uncertainty estimates provided. This suggests a very large contribution coming from the ground subsidence. Without further evidence, public critique could be expected that the 1.26 m rise is 'alarmistically' high given the model output. Please verify. (NETHERLANDS)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1116	68401	SPM	10	37	10	37	The sentence states the following: '...and a 1.26 m sea-level rise, the expected direct global annual cost of coastal flooding may reach 300 US\$ billion per year without adaptation and 90 US\$ billion per year with adaptation'. In the Chapter these amounts (90 billion, 300 billion) are only mentioned with respect to a sea level rise of 0.6 to 1.3 m (see Table 5.8) and thus not '1.26 m'. The 1.26 is mentioned in the Chapter in another perspective (cost estimation only for Africa). The bold statement made in the SPM is only based on one reference, while Table 5.8 shows the broad ranges in cost estimates if also e.g. submergence is taken into account. It seems therefore inappropriate to state only the numbers 90/300 billion. Suggestion: include the broad cost estimations. (NETHERLANDS)	The specific sea-level rise projection and cost estimates have been removed with the text revised to reflect the uncertainty in specific quantitative estimates. Please see B-2.
1117	70254	SPM	10	37	10	37	This would seem to be a rather curious and specific (down to one cm...) choice of sea-level rise. Is the result from one specific study? If yes, then the conclusion would seem to be worded in too definitive terms. (SWEDEN)	This text has been removed.
1118	70349	SPM	10	37	10	37	Improve assessment of cost estimates. The given numbers are upper limites. It would be more objective when full ranges would be given (160-300 without adaptation, 30-90 with adaptation; see tabel 5.8 chapter 5). Furthermore, the cost estimates are based on one single study and as such uncertain (should be given, e.g. by stating 'low confidence') (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	The specific sea-level rise projection and cost estimates have been removed with the text revised to reflect the uncertainty in specific quantitative estimates. Please see B-2.
1119	70991	SPM	10	37	10	37	This reference to such a specific amount of sea level rise raises questions. Why 1.26 metres specifically? Is this the result of one particular study (in which case, that should be made clear)? Is this a best estimate of SLR from one of the RCPs or SRES scenarios? Also, presume this is global sea level rise given the reference to global associated costs, but it would be helpful to say global SLR to make this clear. (CANADA)	This text has been removed.
1120	79206	SPM	10	37	10	37	What is the baseline period for the 1.26 m sea-level rise by 2100 - is it relative to current levels? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1121	80320	SPM	10	37	10	37	A 1.26m sea level rise by 2100 is far beyond the RCP range projected by WGI (see SPM and Chapter 13). Where does this 1.26 m sea-level rise by 2100 come from? Why choosing 1.26 m? 1.26m is not even close to what the WGI AR5, Chapter 13, reports as upper bound of the likely range in the highest RCP SLR projections by 2100, taking into account rapid ice sheet dynamical change and human land water storage. Elevating this one SLR number to the SPM is questionable and the value is inconsistent with the expert WGI AR5 Sea Level Change assessment presented in Chapter 13. It seems to us that it would create a rather confusing picture for policy-makers when the assessment of impacts in WGII is based on projected physical changes which are not consistent with the assessment of WGI. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1122	58767	SPM	10	37	10	39	Clarify whether the flooding cost estimates are in current year dollars or some other basis (William Landuyt, ExxonMobil Research and Engineering)	This text has been removed.
1123	68402	SPM	10	38	10	38	Is it possible to show separately: 'costs of adaptation' and 'residual damages'? (NETHERLANDS)	This text has been removed.
1124	79207	SPM	10	40	10	41	Can we include some numbers for projected levels of acidification and temperature rises? Can we also include some numbers around what the effects may be. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	These projections are assessed and presented in the Working Group I contribution to the AR5. Figure SPM.6 also presents projected ocean acidification under RCP8.5, as in the Working Group I SPM.
1125	80321	SPM	10	41	10	42	You might consider referring here to Chapter 3 (obs) and 6 (projections) of WGI AR5 for global scale assessment of ocean acidification. (Gian-Kasper Plattner, IPCC WGI TSU)	These linkages are made in the underlying chapters. Figure SPM.6 presents projected ocean acidification under RCP8.5, as in the Working Group I SPM.
1126	59779	SPM	10	41	10	43	The second sentence gives the impression that corals are the only things that are/will be affected. Suggest changing the sentence to 'Amongst other impacts, the interaction of acidification and warming exacerbates coral bleaching and mortality (very high confidence).' (AUSTRALIA)	The revised text in the marine systems subsection covers a broader range of species. Please see B-2.
1127	59780	SPM	10	41	10	43	This paragraph should note that acidification is expected to impact on all calcifying organisms, not just coral reef ecosystems. (AUSTRALIA)	The revised text in the marine systems subsection covers a broader range of species. Please see B-2.
1128	61772	SPM	10	41	10	43	The statement on ocean acidification is more appropriate to the next sub-head, Marine Systems, since the whole ocean will be affected. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This change has been made. Please see B-2.
1129	61773	SPM	10	41	10	43	This paragraph is too vague and needs expanding. What are the impacts of OA and warming on other organisms? What's the balance between positive and negative impacts? How does it vary with species/life cycle etc.? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides relevant conclusions to the extent possible.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1130	68403	SPM	10	41	10	43	Please clarify if 'mortality' refers to coral or to oceanic organisms in general? (NETHERLANDS)	This term has been removed, and the revised text in the marine systems subsection of B-2 covers a broader range of species.
1131	68404	SPM	10	41	10	43	Please note that section 30.4 states that climate change in general has consequences for ecosystems within the world's oceans (p. 20 line 11-12), not only acidification and warming and coastal ecosystems (NETHERLANDS)	Consequences for ocean ecosystems are discussed in the marine systems subsection of B-2.
1132	76181	SPM	10	41	10	43	This finding would be more compelling if it included a few examples of the impacts of acidification and warming - not just one on corals. If space constraints are the issue, perhaps a more general sentence (about vulnerable organisms - shellfish, corals, etc.) could replace the current sentence on corals. (UNITED STATES OF AMERICA)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides relevant conclusions to the extent possible.
1133	78198	SPM	10	41	10	43	Correct that acidification and warming are currently most visibly affecting coral in coastal ecosystems. Two suggestions: First, to my knowledge, how acidification interacts with warming is not well understood, but the effects of each on their own is better understood, so it might be better to omit 'The interaction of'. Secondly, it might be worth mentioning that 'it is expected that acidification will result in consequences to a wide range of species in the open ocean'. Recent lab studies are finding growing evidence that acidification scenarios by the end of this century could negatively impact a wide range of both calcifying and non-calcifying species (i.e. plankton) beyond coastal areas. This could significantly alter ocean biomass, food webs and biogeochemical cycles. See: (1) Guinotte, J. and Fabry, V. (2008) Ocean Acidification and Its Potential Effects on Marine Ecosystems. Annals of the New York Academy of Sciences. 1134, 320-342; (2) Fabry, V. (2008) Marine Calcifiers in a High-CO2 Ocean. Science. 320, 1020-1022 (Andrew Wong, University of Waterloo)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides relevant conclusions to the extent possible.
1134	79208	SPM	10	41	10	43	I strongly disagree with the 'high' confidence assessment. The physics and chemistry of ocean acidification are very well understood but the biological consequences are highly uncertain, with many studies showing no effect, whereas others suggest a serious impact - depending on the species and strain. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides overall conclusions based on assessment of the existing knowledge base.
1135	79209	SPM	10	41	10	43	Could this be given a bit more detail - e.g. what are the expected impacts (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This is addressed in the expanded paragraph in the marine systems subsection of B-2.
1136	79823	SPM	10	41	10	43	Not only corals that are affected cf. TS p 38 line 11-15: organisms (fish, petropods, ...), physiological, and ecosystem processes. (NORWAY)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides relevant conclusions to the extent possible.
1137	79824	SPM	10	41	10	43	Please consider to include some more information in the bodytext. It is expected that the acidification and warming of coastal waters will pose more risk than to the corals. For instance it may impact the livelihood of the many communities relying on fish (NORWAY)	The revised text in the marine systems subsection of B-2 covers a broader range of species and provides relevant conclusions to the extent possible.
1138	68405	SPM	10	43	10	43	Please add reference to 6.1.1 in the SPM, as in the TS as well as in the ExSum of chapter 6 this reference is clearly stated. Also, the body text contains the information for this SPM statement. (NETHERLANDS)	This text has been revised, and the supporting chapter sections have been included in line with the Chapter 6 executive summary.
1139	70277	SPM	10	45	10	45	Specific consideration should be given to brackish seas, where not only change of temperature, but also of salinity is causing a shift of species and where there is limited possibility to "escape". (SWEDEN)	Multiple stressors are discussed in this section. Please see B-2.
1140	61774	SPM	10	45	11	2	The statement on 'new opportunities...in high latitude regions' presumably relates to loss of Arctic sea ice, but that is not explicit - and is inconsistent with the initial statement in bold (on storminess etc, with no mention of ice cover) (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed.
1141	61939	SPM	10	45	11	2	Many fisheries-focused studies focus on species rather than ecosystems, and the complex links from there to impact on humans in socioeconomic terms that remain relatively understudied and highly complex in terms of disaggregating anthropogenic climate impacts overfishing and other multiple stressors. This could be highlighted, however intuitively likely the impact does appear to be from all the other evidence when seen together. (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	Multiple stressors and interactions with climate change are discussed in this section. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1142	61775	SPM	10	45	11	14	There is no mention of acidification of the wider ocean and its possible impacts (fish stocks or other marine life harvested for human consumption, e.g. shellfish). Please include key messages on the impacts. The statement on page 39, line 16-19 on links between changes in ecosystems and acidification with access to food, poverty and disease could be included here as a good summary of projected impacts. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This is addressed in the expanded paragraph in the marine systems subsection of B-2.
1143	79825	SPM	10	45	11	14	What about ocean acidification? It is extremely important for marine systems and merits to be mentioned here (as it is in the TS). (NORWAY)	A paragraph on ocean acidification is now included in this subsection. Please see B-2.
1144	79826	SPM	10	45	11	14	Include section on mitigation potential of marine systems ( e.g. the essence of TS p. 39, l. 42-48: Carbon mitigation strategy). (NORWAY)	This topic is assessed by Working Group III.
1145	56984	SPM	10	46	10	55	Include as many regions as possible in providing these examples so as to depict a regional balance in reporting (KENYA)	Improved balance of regional examples has been achieved in the revised summary for policymakers.
1146	59781	SPM	10	47	10	52	It is suggested that 'low confidence' for species loss at tropical altitudes be amended to 'high confidence'. Warming is unlikely to occur in isolation, and many of these marine species may be vulnerable to other climate change effects, as well as cumulative pressures. It is suggested that a suitable caveat is added to reflect this. (AUSTRALIA)	This confidence has been revised to "medium." Please see B-2.
1147	59782	SPM	10	47	10	52	This paragraph is difficult to follow. The information is useful, but rephrasing it would make it much more readable. (AUSTRALIA)	Text has been revised for clarity. Please see B-2.
1148	63946	SPM	10	47	10	52	It is not clear whether there could be consequences for food security or not, particularly in regions with a high percentage of marine-based food supply. Therefore, a link should be made to SPM P 11 L 16-32 (food security with focus on terrestrial food production). If there is a significant impact for food supply in the tropics (L 51), it is a question of social inequity. For this reason a link should be inserted to SPM P 13 L 9-10. (GERMANY)	The potential for consequences for food security is now mentioned in this paragraph, with reference to Chapter 7. Please see B-2.
1149	79827	SPM	10	47	10	52	Is this valid for all the RCP-scenarios? And does it include effects of acidification? Would there be regional/local variations? We also feel that this key-finding should include a discription of impacts on biodiversity and ecosystems which is important (NORWAY)	The text has been revised to clarify that this conclusion relates to changes in species richness and catch potential. Ocean acidification is also addressed in a separate paragraph. Please see B-2.
1150	63947	SPM	10	49	10	52	To what extent are other drivers of change (such as overfishing) considered in these projections? If they are not included at all, it should be mentioned again, that overfishing is another important (and probably more important) driver of change in fish yield. (GERMANY)	This text has been removed. The caption for Figure SPM.6A clarifies that the projection for catch potential in the figure does not include overfishing.
1151	70255	SPM	10	50	10	51	Could one refer to the relevant warming instead of to names of SRES scenarios? (SWEDEN)	This text has been removed.
1152	70605	SPM	10	50	10	51	If there are projections for the large fisheries in the mid-high latitudes, can these be included? (NEW ZEALAND)	Figure SPM.6A provides a global map of projections.
1153	70606	SPM	10	50	10	51	Please also include the results of published work suggesting that maintaining marine biodiversity provides some buffering of climate change effects in the ocean (NEW ZEALAND)	Space considerations do not allow specific discussion of this point, but the last sentence of the revised paragraph addresses challenges for marine management regimes arising from climate change and other stressors.
1154	61776	SPM	10	51	10	51	It would be better to use the results from the RCPs than A1B for consistency across all the working group reports. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed. The most up to date projections have been assessed based on the available+1424 literature.
1155	70256	SPM	10	54	10	54	Unclear. What will benefit? The "differences"? (SWEDEN)	This text has been removed.
1156	76182	SPM	10	54	11	2	The references to supporting information for this SPM statement should include 30.6.2 in addition to those already listed. (UNITED STATES OF AMERICA)	This text has been removed.
1157	68406	SPM	10	54	11	11	Please note that in section 6.5 there is no reference to the statement (NETHERLANDS)	This text has been removed.
1158	79210	SPM	10	55	11	1	What is "dynamic fisheries management"? Does this mean the fishing management should be flexible taking into account effects of climate change? Should re-phase the sentence. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1159	79211	SPM	10	55	11	1	This sentence "Building dynamic fisheries management....." doesn't make sense grammatically. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1160	78104	SPM	10	55	11	2	"Dynamic fisheries management and sustainable aquaculture" are very generic terms that do not qualify enough the opportunities they provide for adaptation (Philippe MacClenahan, Synergies Environnement)	This text has been removed.
1161	79828	SPM	11	1	11	2	Include "and reduce over-exploitation" to generate "...fisheries management, sustainable aquaculture and reduce over-exploitation provide...". Management of protected areas should also be important here. (NORWAY)	This text has been removed.
1162	68407	SPM	11	2	11	2	Please consider substituting the term "fish stocks" by "some fish species" in order to better reflect the content of chapter 7. (NETHERLANDS)	This text has been removed.
1163	80322	SPM	11	4	0	0	Presumably the start of this sentence 'Changes to....' could be rewritten more specifically as 'Increases in...', given that the sentence speaks only of increases in risk. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1164	59783	SPM	11	4	11	7	What are the 'new opportunities' referred to in this sentence? (AUSTRALIA)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1165	60443	SPM	11	4	11	7	The message apparently combines two issues: 1) changes in climatic condition will increase risks for coastal and ocean based activities and 2) as sea ice melts new opportunities and "international issues" over access to high latitude resources and vulnerability high latitude systems could arise. Consider rewording to clarify message. (DENMARK)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1166	61777	SPM	11	4	11	7	The two Marine statements relating to living resources are exclusively fishery-focused, without any mention of impacts on other marine ecosystem services. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The importance of marine ecosystem services is highlighted in section B-1.
1167	68408	SPM	11	4	11	7	In section 6.5 there seems to be no reference to physical effects as described (surface winds, wave height, storm intensity). (NETHERLANDS)	This text has been removed.
1168	76183	SPM	11	4	11	7	The references to supporting information for this SPM statement should not include 6.5 as this section focuses on primary productivity, higher trophic levels, and fisheries, specifically, and these are not the topics of the SPM statement. (UNITED STATES OF AMERICA)	This text has been removed.
1169	78105	SPM	11	4	11	7	The causal relationship between warmer waters, increased risks, and new opportunities is not clear from the statement (Philippe MacClenahan, Synergies Environnement)	This text has been removed.
1170	79212	SPM	11	4	11	7	The headline message in bold describes risks associated with changes to surface winds, sea level, wave height and storm intensity, while the text that follows describes opportunities from warming waters. These appear to be different issues and I wonder if they should be presented together? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1171	80323	SPM	11	4	11	7	This statement seems to imply that any changes in surface winds, sea level, wave height and storm intensity will increase the risk. Isn't the risk only increasing for increases in all these quantities? And it's unclear if the statement is saying that these are all changes that will happen, so perhaps adding "Any changes" to make it clear that this is generic statement and not an assessment conclusion for these changes. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1172	58872	SPM	11	6	0	0	I would suggest not to use the term "heat stress" but "adverse heat related health impacts": Reason - A heat stressed organism not necessarily develops negative health outcomes or leads to a decrease in productivity (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	This comment is misplaced, but seems to refer to page 14, line 6. The phrase has been replaced by "extreme heat" in discussion of risks and other harms.
1173	64338	SPM	11	6	0	0	Opportunities for what?? (Don Lemmen, Canada National Study)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1174	79829	SPM	11	6	11	7	This sentence is somewhat confusing as it indicates that international issues over vulnerability are expected. Please consider to rephrase: "Vulnerability and new opportunities as well as international issues over access are expected as waters warm, parti (NORWAY)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1175	70257	SPM	11	7	11	7	Should this refer to sea ice melt than warmer waters? (SWEDEN)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.
1176	79213	SPM	11	7	11	7	plus sea-level rise and increased intensity of weather events (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed. Transboundary issues are also addressed in the subsection of B-2 on human security.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1177	63334	SPM	11	9	0	0	Figure SPM 4 Part A and B are too complex and different would require very high resolution printing to see the detailed information. Part C effectively condenses and presents the key message. Suggest deletion of A and B, but to make reference to the TS for more detailed discussion. (IRELAND)	This figure, now Figure SPM.6, has been revised and simplified for clarity. Panel A has been removed, but panel B has been retained given its illustration of relevant findings in the section. Panel C has been removed, as Table SPM.1 now presents regional risks. This has been replaced by a panel on ocean acidification.
1178	67964	SPM	11	9	11	14	(Also on Figure SPM. 4 in Page 38) In the text explaining the Figure SPM.4, (A) shows projection result based on SRES A2 scenario and (B) shows projection result based on SRES A1B scenario. It would be better to explain why they are based on respective and different scenarios and also to remind what the two scenarios are. (A2 = a high emission scenario; A1B= a medium emission scenario.) (JAPAN)	This figure, now Figure SPM.6, has been revised and simplified for clarity. Panel A has been removed, but panel B has been retained given its illustration of relevant findings in the section. Approximate correspondence to the RCPs has been provided, also for comparison with the new panel on ocean acidification.
1179	80324	SPM	11	9	11	14	Figure SPM.4: This is an interesting figure, but there are number of issues: (i) comparability of results: the figure combines results in A and B which are based on rather different scenarios with rather different projected atmospheric CO2 and climate change (SRES A2 vs SRES A1B). Furthermore, panels A and B use different reference periods. (ii) Robustness of results: Panel A present results from a set of only 4 models -- how robust are these results and are they robust enough to be elevated to the SPM? Does panel B really show the difference calculated from two individual years (2000 and 2050)? If so, how does year-to-year variability affect the calculated difference? (Gian-Kasper Plattner, IPCC WGI TSU)	This figure, now Figure SPM.6, has been revised and simplified for clarity. Panel A has been removed, but panel B has been retained given its illustration of relevant findings in the section. The comparison in the former panel B has been clarified (comparison of ten-year averages).
1180	61778	SPM	11	11	0	25	Replace likelihood statements by confidence statements - this statement is not different that much from the others in terms of amount of underlying data. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Misplaced comment.
1181	67965	SPM	11	12	11	14	(Also on Figure SPM. 4 (B) in Page 38) In the text explaining the Figure SPM.4 (B), the legend just beside the figure indicates that the figure shows change in catch potential ("potentia" had better be replaced by potential). If that is the case, the text explaining (B) needs to be corrected with insertions ("change in") so that (B) should read as "A projection of change in maximum fisheries catch potential of 1000 species of ..." (JAPAN)	The figure legend now clarifies that the figure, now Figure SPM.6, presents change in maximum catch potential.
1182	76184	SPM	11	15	11	15	What does "the evolution of the climatic drivers" mean? Do the authors refer to how their influences manifest over time? Should some of this information about how drivers impact climate as a function of time into the future be placed in the projections section? Consider adding discussion of what is known and uncertain about how climate drivers interact with each other (e.g., a discussion of feedbacks, in particular regarding the roles of clouds). (UNITED STATES OF AMERICA)	Misplaced comment.
1183	58830	SPM	11	16	11	16	We suggest rephrasing this section to "Food security and food production systems" (Carlo Scaramella, World Food Programme)	The current section heading has been retained in the current draft, given the focus of the content presented. Please see B-2.
1184	63335	SPM	11	16	11	16	Can the WGII offer any findings in the SPM related to livestock agriculture. Also climate change impacts on pest and disease. (IRELAND)	These topics have been considered, but have not been included due to broader space constraints. Relevant conclusions are presented in the underlying chapters.
1185	70278	SPM	11	16	11	16	Yields are not only limited due to higher air temperatures and less water, but need to be clarified that vulnerability also will increase indirectly, e.g. through changed exposure to pests and weeds, as well as of too much water (flooding, erosion damage). (SWEDEN)	These findings focus on the direct effects of climate change. Please see B-2.
1186	61779	SPM	11	16	11	32	Should also point out that decisions made not on food production will have major impacts on future population growth. Do projections of future populaton consider this linkage? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, and the basis for statements related to population growth is explained in the underlying chapter text. Please see B-2.
1187	61780	SPM	11	16	11	32	The paragraph on weeds from the Technical Summary (p.40, line 24-28) could be added as important information. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This topic has been considered, but has not been included due to broader space constraints. Relevant conclusions are presented in Chapter 7.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1188	76185	SPM	11	16	11	32	1) No mention of variability. Should at least say what we do or don't know. 2) No mention of distribution, which is so important for food. 3) The discussion is only about total production. Cpt 7 purports to be about food security more broadly. An alternative would be to address climate change impacts on smallholder livelihoods, which can also be linked to adaptation and protection. (UNITED STATES OF AMERICA)	Variability is now addressed in this subsection. Please see B-2. Distribution is discussed in the underlying chapter, but is not included here due to space considerations. Topics related to food security and smallholder livelihoods are also discussed in the subsections on rural areas and livelihoods and poverty.
1189	76186	SPM	11	16	11	32	The section on food security does not mention fish and other seafood, despite widespread dependence on fish and seafood as a protein source and despite major impacts predicted in the marine systems section (immediately preceding this section). It is recommended that impacts of changes in marine systems on human food supply and security be included. (UNITED STATES OF AMERICA)	Potential implications for food security are noted in the subsection on marine systems. Please see B-2.
1190	63336	SPM	11	16	11	33	The section on food security does not include other animal protein sources including seafood, fish, meat and dairy. This is a major oversight, especially given projected increasing in global demand. (IRELAND)	Potential implications for food security due to changes in marine systems are noted in the corresponding subsection. Please see B-2. Specific assessment findings on meat and dairy are not presented in the underlying chapter executive summary.
1191	63948	SPM	11	18	0	0	To which reference level does this warming of 2C relate? (GERMANY)	Reference periods for temperatures in this subsection have been clarified. Please see B-2.
1192	66146	SPM	11	18	0	0	Clarify meaning of 'up to 2 deg C'. Does it mean any small amount of warming (e.g 0.2 C, which is in the realm of 'up to') reduces yield potential in this region. This is unlikely. If so, better to use 'warming of about 2 deg C'. And you do not mean 'temperate' do you, but 'mid and mid-high latitude'. Or are you specifically excluding continental mid latitude. Can solve the former issue by separating our a) altered yield potential from b) likely changes in output after adaptation. (Martin Parry, Imperial College)	Text has been revised for clarity. Please see B-2.
1193	70258	SPM	11	18	11	18	This is unclear. Already at much lower temperature rises than two degrees? What takes place in these regions beyond a two degree rise in temperature? (Would be useful to relate this also to the global mean rise.) (SWEDEN)	Text has been revised for clarity. Based on available evidence, only local temperature reference points are possible. Please see B-2.
1194	65011	SPM	11	18	11	20	It is important to explain that 2 Celcius degree is related to re industrial period. (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	Reference periods for temperatures in this subsection have been clarified. Please see B-2.
1195	79214	SPM	11	18	11	20	Does the assessment of "medium confidence" refer to both parts of the first sentence or just ascribed to the statement about "many individual locations may benefit". (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Per the convention used throughout the SPM, a confidence level at the end of a sentence refers to the entire sentence.
1196	61781	SPM	11	18	11	24	It appears that "robust evidence" assumes that biophysical/statistical crop growth models are well specified (in terms of process representation and input data such as crop management information) and that temporal and spatial down-scaling of climate change runs are sensibly done. Latest results from AGMIP and ISI-MIP indicate that models and climate signals feeding these models are rather unsatisfactory creating serious doubt on the evidence base. Mosts of the statements are self-referential to Challinor's work. Challinor et al. (2013) is not published yet which makes an assessment of the validity of the statements difficult. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	These statements have been revised in line with the assessment of the available evidence base. Please see B-2. The published sources for these analyses are given in chapter 7.
1197	61782	SPM	11	18	11	24	This information is very important but not entirely clear. Need some quantification of the impacts. Also, it mentions local warming of 2 and 3degC but how does this relate to global temperatures? What are the impacts at higher temperatures? How does this relate to the RCPs? 2C local warming under RCP2.6 might be very different to 2degC warmign under RCP8.5. The para also mixes local temperature with time periods based on global temperatures without any explanation. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text has been revised for clarity, and clarification of impacts at higher levels of temperature increase has been added to this subsection. Based on available evidence, only local temperature reference points are possible. Figure SPM.7 illustrates the range of projections over the 21st century.
1198	65603	SPM	11	18	11	24	It would be helpful to note here that this implies less food per person. (David Flint, Cass Business School)	This point is made more clearly in the revised text. Please see B-2.
1199	77450	SPM	11	18	11	24	There is no reference to what effects a warming of more than 2°C would have on food production and food security. (Sven Harmeling, Germanwatch)	A statement on impacts at higher levels of temperature increase has been added to this subsection. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1200	79215	SPM	11	18	11	24	Comment: can something be said here about CO2 fertilisation normally having a positive effect but with temperature changes offset the benefits. Also: something about assumed infinite water availability. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	These details are discussed in the underlying chapter.
1201	79830	SPM	11	18	11	24	For completeness effects on yields in high latitudes may also be included. (NORWAY)	Projections for high latitudes vary, and thus a clear conclusion cannot be presented.
1202	85189	SPM	11	18	11	24	There is no evidence that such warming could occur. Continued northern hemisphere cold winters are happening, though, but it does not worry you (Vincent Gray, Climate Consultant)	This section presents future risks from and potential for adaptation to projected climate change.
1203	58831	SPM	11	18	11	32	We recommend expanding this section to mention the impact of extreme weather impacts on food security. Suggested text includes: "In addition to increasingly erratic and unpredictable rainfall patterns, evidence already suggests that some of the most direct impacts of climate change on food security are through extreme climate and weather-related events such as droughts, floods, and storms. Such events lead to loss of crops, destruction of livelihood assets and income sources, and negative health outcomes, among other factors which affect food security. Adaptation efforts should focus on supporting the most vulnerable and food insecure households." (Carlo Scaramella, World Food Programme)	Relevant findings are presented in the rural areas and livelihoods and poverty subsections of B-2.
1204	58832	SPM	11	18	11	32	We recommend expanding this section to mention the importance of food access - a key message from Chapter 7. Suggested text includes: "The ability of households to access food is critical for their food security. For example, the recent 2007/2008 food price crisis has highlighted that food price volatility can exacerbate food insecurity, particularly among the poorest people who depend on markets for their food. Adaptation efforts should therefore focus on enhancing the ability of households to access food; for instance, by enhancing market access and diversifying livelihoods into non-climate sensitive activities." (Carlo Scaramella, World Food Programme)	Relevant findings are presented in the rural areas and livelihoods and poverty subsections of B-2.
1205	68409	SPM	11	19	11	19	The wording "many individual locations" does not seem to align with the main text which might support "some individual locations", or even "individual locations" better. (NETHERLANDS)	Text revised along these lines. Please see B-2.
1206	68410	SPM	11	19	11	19	The inclusion of rice in this list of species that are likely negatively affected by climate change is hard to understand considering the following sentence in the main text: "there is also medium confidence that effects on rice and soybean yields have been small in major production regions and globally. (Chapter 7, page 7, lines 21-23). It is advisable to resolve this inconsistency. (NETHERLANDS)	This is a forward-looking section, and observed changes are presented in section A-1. Figure SPM.2 illustrates observed impacts on rice yields.
1207	63949	SPM	11	20	0	0	"confirmation" by what? (GERMANY)	This text has been removed.
1208	77456	SPM	11	20	0	0	why is food security only addressed in the context of 2°C, and to above 2°C temperature increase (Sven Harmeling, Germanwatch)	A statement on impacts at higher levels of temperature increase has been added to this subsection. Please see B-2.
1209	68411	SPM	11	20	11	20	Please explain to which yields this term refers. Is this yields in the tropics in general, or does it refer to cereal yields as in the previous sentence. Clarification is needed. (NETHERLANDS)	Text has been revised for clarity. Please see B-2.
1210	70350	SPM	11	20	11	20	Here an example where it is needed to clarify stated 2oC warming is global or local. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Reference periods for temperatures in this subsection have been clarified. Please see B-2.
1211	70351	SPM	11	20	11	20	"decrease yields". Needs specification. All crops? (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	Text has been revised for clarity. Please see B-2.
1212	70992	SPM	11	20	11	20	Is this local 2degC increase again (as in the previous sentence for temp change in temperate regions)? If so, add "local" before 2degC. (CANADA)	Reference periods for temperatures in this subsection have been clarified. Please see B-2.
1213	80325	SPM	11	20	11	20	"There is confirmation" -- how should this be interpreted? "It's a fact" or "some studies show"? We suggest to reword this using the formal terminology as described in the uncertainty guidance note to be absolutely clear about the statement. (Gian-Kasper Plattner, IPCC WGI TSU)	This term has been removed, and text has been revised for clarity.
1214	80326	SPM	11	20	11	24	What scenario are these statements about "more likely than not beyond 2050", "likely by the end of the century", "from the 2070s onwards". Surely this will be strongly dependent on the scenario. Or are you implying that this apply to RCP2.6 as well as RCP.8.5? (Gian-Kasper Plattner, IPCC WGI TSU)	These likelihood terms have been removed, and Figure SPM.7 illustrates the range of projections over the 21st century. Differentiation by RCP scenario is not possible based on available evidence, but conclusions are given for specific levels of local temperature increase above preindustrial.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1215	68412	SPM	11	21	11	24	"Reductions ... evidence)." This sentences leans heavily on, and is in fact almost, a copy of the coverage in Chapter 7 of the study of Challinor et al. (2013). Although Challinor is on of the leading author of Chapter 7, this study is not yet accessible to the scientific community, and according to the bibliography, has not yet passed peer review. It seems appropriate for such a wide ranging and important statement in the SPM to be more widely supported by publicly accessible data, particularly with the labelling, high agreement robust evidence. (NETHERLANDS)	This text has been removed, and an overall statement quantifying negative impacts on crop yields is included based on the assessment of the evidence base. Challinor et al 2013 is not cited in chapter 7 - but the original published papers are.
1216	70259	SPM	11	21	11	24	Which temperature increases are meant here? (SWEDEN)	This text has been removed, and an overall statement quantifying negative impacts on crop yields is included based on the assessment of the evidence base.
1217	79831	SPM	11	21	11	32	This sentence is very long and complicated and hence does not read easily for policymakers. Pleae consider to rephrase and split it up, for instance to: "Adaptation may increase crop yield by 15-20%, compared to no adaptation. Adaptation is more effective (NORWAY)	This text has been revised for clarity. Please see B-2.
1218	68413	SPM	11	22	11	24	It might be helpful to rephrase the sentence by replacing the word "will be" by "are in" on line 22 as the statement is a projection and not definitive. (NETHERLANDS)	This specific text has been removed.
1219	79832	SPM	11	25	11	25	Consider to include the very relevant finding in chapter 7 page 2 line 49-53. (NORWAY)	A statement on impacts at higher levels of temperature increase has been added to this subsection. Please see B-2.
1220	62451	SPM	11	26	11	27	Adaptation benefit, if any, in tropical region may be included. (INDIA)	This subsection summarizes what can be said about the potential for adaptation across regions. Please see B-2.
1221	61784	SPM	11	26	11	28	The sentence starting with "Net benefits" is confusing, among others because it does not clarify whether it refers to absolute benefits or to relative benefits (as a percentage of impacts in the absence of adaptation). It is very doubtful whether adaptation is more beneficial for larger temperature increases than for smaller ones, as suggested by this sentence. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed.
1222	70260	SPM	11	26	11	28	What applies to temperature increases beyond 3 degree local warming? (Would be useful to relate this also to the global mean rise.) (SWEDEN)	This text has been removed.
1223	77455	SPM	11	26	11	28	it is a somewhat misleading perspective to argue that the net benefit of adaptaiton increase with the temperature increase, since this may lead to the assumption that the more temperature increase the less demand for adaptation finance since the costs seem to be lower (Sven Harmeling, Germanwatch)	This text has been removed.
1224	79216	SPM	11	26	11	28	Adaptation options for food systems show a very wide range in effectiveness. Net benefits of adaptation will increase with rising local mean temperature of up to approx 3 degC above preindustrial. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised and shortened for clarity. Please see B-2.
1225	79217	SPM	11	26	11	28	Didn't understand from the text what the implications were for warming greater than 3 degrees. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1226	61783	SPM	11	26	11	32	The term food system is misleading in the context as adaptation is the referred work restricts itself to the analysis of geographically static food production systems. Crop yield adaptation seems to ignore geographic flexibility due to intra- and interregional trade. Suggested rewording: LOCAL adaptation possibilities of food systems to CC..... (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text revised for clarity. Please see B-2.
1227	67966	SPM	11	26	11	32	This paragraph contains very important information on of food systems. Please maintain this paragraph. Also please add some comments on CO2 concentration effects. (JAPAN)	This text has been revised and shortened for clarity and space considerations, but the primary findings have been retained. Please see B-2. CO2 effects are discussed in the underlying chapter, but are not presented separately here due to space considerations.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1228	70993	SPM	11	26	11	32	This paragraph is unclear in a number of respects. With respect to the first sentence, have the benefits of adaptation only been assessed up to 3degC change in local temperature or does the conclusion change for greater temperature changes? As currently written, the reader is left wondering what studies say about greater temperature changes, and particularly whether the benefits of adaptation will decrease after this 3degC threshold. It would be helpful and of interest to explain why adaptation is more effective at high latitudes (line 30) and why benefits are greater in temperate vs. tropical regions (lines 31-32). Suggest deleting the phrase "but with some adaptation options more effective than others" (line 30) as this does not add any information of value. (CANADA)	Text has been revised and shortened for clarity, and a statement on impacts at higher levels of temperature increase has been added to this subsection. Please see B-2.
1229	85190	SPM	11	26	11	32	There is no evidence that such temperature increases are possible despite your "confidence" (Vincent Gray, Climate Consultant)	This section presents risks from and potential for adaptation to projected climate change. Please see Figure SPM.4 and the WGI AR5 for assessment of projected temperature increases across scenarios.
1230	63950	SPM	11	26	11	50	The para on food systems and the para on rural areas seem to disagree on the effectiveness of adaptation: the first para is neutral to optimistic, whereas the latter states the adaptation might not be sufficient. Please clarify. (GERMANY)	Text revised for clarity. Please see B-2.
1231	63951	SPM	11	28	0	0	Please add: "... (medium confidence), after which the net benefits no longer increase (medium agreement, medium confidence)." (TS, P40, L 38) (GERMANY)	Text revised for clarity and consistency with confidence language presented in Chapter 7. Please see B-2.
1232	79218	SPM	11	28	11	28	Should it read "smaller" rather than "lower" (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised for clarity. Please see B-2.
1233	79833	SPM	11	28	11	30	We consider this to be a very informative message to policymakers. Please consider to make this a key finding in bold text. (NORWAY)	A revised version of this statement has been made a bold finding. Please see B-2.
1234	66073	SPM	11	28	11	32	These sentences are hard to understand. (FINLAND)	Text revised for clarity. Please see B-2.
1235	62452	SPM	11	31	11	32	The statements says that benefits of adaptation are greater for crops in temperate than tropical. This is a confusing statement, needs explanation. (INDIA)	This text has been removed.
1236	68414	SPM	11	31	11	32	"Benefits are greater....": please indicate if this is also true when benefits are calculated as a percentage of GDP. (NETHERLANDS)	This text has been removed.
1237	79219	SPM	11	31	11	32	Can you include a confidence level for this? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1238	68415	SPM	11	32	11	32	Reference to 7.1: actually chapter 7 section 1 is not related to adaptation on which these SPM lines (page 11 lines 26-32) refers to. (NETHERLANDS)	Reference revised. Please see B-2.
1239	79220	SPM	11	32	11	32	Comment: reason for benefits of adaptation being greater for rice, wheat and maize? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1240	62453	SPM	11	34	11	34	Urban areas: This section as well as the following section is full of very generic statements and of little use to policy makers (INDIA)	These sections have been revised with this in mind, based on the assessment in the underlying chapters. Please see B-2.
1241	61785	SPM	11	34	11	41	This summary of chapter 8 on urban areas is too brief and excludes issues such as air quality and the UHI. Please expand. There are interesting findings summarised in the Technical Summary. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This summary has been revised based on the final draft of Chapter 8. Please see B-2. Heat stress and air pollution risks are mentioned explicitly, although specific findings are not available.
1242	79834	SPM	11	36	11	38	Some quantification of this finding would make this finding even more informative. The quantification could be in the body of the text. (NORWAY)	Quantification is not possible based on the assessment in the underlying chapter.
1243	76187	SPM	11	36	11	39	This bullet seems so overly generalized as to suggest that all cities will see enhanced climate risks. While this may be true in very broad terms, Cpt 8 clearly points out that the mid and low income countries are the ones that will likely see the largest growth in population and already have the highest vulnerability and the least capacity to adapt. This bullet seems too generalized. (UNITED STATES OF AMERICA)	These statements have been revised in line with the assessment of the available evidence base in Chapter 8. Please see B-2.
1244	70994	SPM	11	36	11	41	Attention on urban areas is a significant new area of focus in the AR5, but this text is not particularly meaningful for decision makers. Suggest reviewing and increasing relevance if possible. (CANADA)	This section has been revised with this in mind, based on the assessment in the underlying chapters. Please see B-2.
1245	79221	SPM	11	36	11	41	would benefit from including examples of how urban areas will increase the concentration of climate-related risks. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised, and concentration of risks is not mentioned explicitly. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1246	79835	SPM	11	36	11	41	In the findings under "Rural areas" line 45-46, extreme events are emphasized as a major impact. We believe that this could also be the case for Urban areas e.g. since the exposure may be higher in these areas? When different factors, for instance extreme (NORWAY)	Several categories of extreme events are now mentioned in the revised paragraph. Please see B-2.
1247	65391	SPM	11	37	11	37	It is suggested to delete "concentration of" before "climate-related risks" because it is difficult to interpret. Furthermore concentration of populations need not necessarily result in increasing climate-related risks. This depends also on the difference in exposure between the region of origin and the town/city. The term concentration risk is used to describe the risk of loss from a large position in a single asset or market exposure. It would be much clearer and more informative to describe the added value of proper land-use planning in order to locate settlements only at locations with low climate-related risks. (Klaus Radunsky, Umweltbundesamt)	This text has been revised, and concentration of risks is not mentioned explicitly. This section also addresses urban adaptation options. Please see B-2.
1248	80327	SPM	11	38	11	41	"will shift" -- Is this a generic statement and thus a statement of fact? Or is this a "projection" that would thus need to be accompanied by a level of confidence? (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1249	79222	SPM	11	39	11	39	"and regions, based on levels of preparedness and exposure to risks, and.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1250	63952	SPM	11	39	11	41	Delete this passage - it is not meaningful. (GERMANY)	This text has been removed.
1251	60636	SPM	11	41	0	0	Increased intensity, frequency, and duration of extreme events, as climate change becomes more extensive, directly affects a large fraction of the urban population through impacts on infrastructure. [5.4.3, 8, 12.6, 19.6.2] (George Backus, Sandia National Laboratories)	This subsection of B-2 and the discussion of key risks in section B-1 highlight impacts on infrastructure in urban areas.
1252	70995	SPM	11	45	0	46	This finding is quite vague and confusing. Suggest increasing precision. In particular the meaning of "will be mediated" is not clear. (CANADA)	Text revised for clarity. Please see B-2.
1253	79223	SPM	11	45	11	45	replace "mediated" with "influenced"? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised for clarity. Please see B-2.
1254	61786	SPM	11	45	11	46	This sentence is not clear. What is meant by "Future impacts will be mediated by... extreme event and effects... on agriculture." Needs a clearer statement like impacts on rural areas depend on extreme events and effects of climate change on agriculture and other ecosystems? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Text revised for clarity. Please see B-2.
1255	68416	SPM	11	45	11	46	Please consider rephrasing the subheading as the word "mediated" might not be appropriately used. Instead, the appropriate words could be 'exacerbated' or 'aggravated' (NETHERLANDS)	Text revised for clarity. Please see B-2.
1256	79224	SPM	11	45	11	46	Text in bold is written in a confusing way - not easy to figure out what it means/ (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised for clarity. Please see B-2.
1257	79836	SPM	11	45	11	48	We propose to switch the sequence between sentence 1 and 2 and start with the sentence from line 46-48 and put that in bold. Furthermore is it possible to use more understandable language than "mediated in complex ways"? (NORWAY)	Text revised along these lines. Please see B-2.
1258	66072	SPM	11	46	11	46	In the context of this statement the term "less-managed" is probably not very familiar to many. (FINLAND)	This text has been removed.
1259	68417	SPM	11	48	11	50	"...may not be sufficient...": adaptation designed to tackle actual climate variability is per definition not sufficient to deal with climate-change (as climate change will lead to increasing variability). (NETHERLANDS)	This text has been removed.
1260	68418	SPM	11	48	11	50	Please note that the statement on "Adaptation can build on current ... range of projected climate change" cannot be found in the indicated references ([9.3.3,9.4.1,9.4.3]). (NETHERLANDS)	This text has been removed.
1261	79225	SPM	11	48	11	50	"Adaptation can build on current responses to climate variability, but these may not be sufficient to deal with the range of impacts associated with climate change." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1262	68419	SPM	11	51	12	2	Since this paragraph points out "global food supply security" might it be opportune to mention food security which is developed in Chapter 7 specifically 7.2..2 and 7.3.3 or related subsections, possibly with a short phrase to make a link? (NETHERLANDS)	This text has been removed here, but the remaining paragraph and revised text now appearing in the subsection of B-2 on livelihoods and poverty include reference to food security.
1263	79226	SPM	11	52	11	52	Change 'will' to something softer such as 'could' or 'may' – prices are driven by multiple factors. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and this specific statement has been removed. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1264	59784	SPM	11	52	11	54	This sentence states 'Climate change will lead to higher prices and increased volatility in agricultural markets, which may undermine global food supply security while differentially affecting net buyers and net sellers of food (medium to high confidence)' - With only medium to high confidence assigned to this statement, how can we know climate change 'will' lead to higher... ? (AUSTRALIA)	This text has been revised for clarity, and this specific statement has been removed. Please see B-2.
1265	61787	SPM	11	52	12	2	This is a conditional statement depending on the market structure. There is the question of institutional auto-adaptation to climate change in terms of a more robust international trade regime. Higher volatility also depends on the unevenness of geographic yield impacts and the higher price level would only emerge if there were restrictions on land expansion and not CO2 fertilization effects etc. Furthermore, as shown in Figure 7-4 food prices are increasingly co-integrated with energy prices, which point to the fact price formation mechanisms are less driven by climate... All of these issues are NOT medium to high confidence and chapter 7 does not support such confidence levels. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, and this specific statement has been removed. Please see B-2.
1266	77539	SPM	11	52	12	2	Move this paragraph to the section "Food production systems and food security" (SWITZERLAND)	This text has been revised, with the text remaining in this subsection focused on rural areas. Please see B-2.
1267	79227	SPM	11	54	11	54	"Deepening agricultural markets through reformed trade and institutional efforts.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1268	68420	SPM	12	1	12	2	Suggestion: add after ....in developing countries....: ...and improving local access to regional and national information on climate and weather... (NETHERLANDS)	This text has been removed.
1269	63953	SPM	12	1	12	19	Please provide information of the effect of climate change on renewable energy sources, which are more relevant for the future energy mix than thermal or nuclear power plants, as found by WGIII. (GERMANY)	This is addressed in the subsection on economic sectors and services to the extent possible based on the underlying chapter assessment. Please see B-2.
1270	79228	SPM	12	2	12	2	Change 'caused' to 'exacerbated' – climate change is not the only driver of market volatility and volumes of food supply. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1271	61788	SPM	12	4	12	4	The "Monetized impacts" conclusion stems from the fact that Ricardian models were used to under-pin assessment. In richer models such as GEMs such statement might fall apart. The high confidence is not justified due to biased review of literature. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed.
1272	62455	SPM	12	4	12	4	The term "Monetized" could not be found in a standard dictionary such as Merriam-Websters (www.m-w.com). Do the authors mean "monetary" or "financial"? (INDIA)	This text has been removed.
1273	62454	SPM	12	4	12	5	The examples of key economic sectors and services needs to be further defined. (INDIA)	This text has been removed.
1274	63337	SPM	12	4	12	7	These statements are very difficult to interpret. The concept of "monetized impacts" is introduced for the first time without explanation. High confidence is given without reference to evidence or agreement. (IRELAND)	This text has been removed.
1275	78269	SPM	12	6	12	6	In line 6, a short (3-10 word), concrete example could help illuminate "Valuation of non-marketed ecosystem services". E.g. the loss of natural "free" crop pollinators such as native bee populations" (Shane Easter, Carnegie Institution of Washington)	This text has been removed.
1276	65664	SPM	12	6	12	7	Two "valuations" and one "valuing" in the same sentence is clumsy. Re-phrase? "Valuation of rural impacts is challenging because of non-marketed ecosystem services and limitations of economic models that aggregate across contexts". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been removed.
1277	66075	SPM	12	6	12	7	The non-bold text "Valuation...impacts." is a wrong synopsis of the original phrasing in Chapter 9, page 3, lines 39-44. Please use the original phrasing. (FINLAND)	This text has been removed.
1278	78106	SPM	12	6	12	7	Part of the sentence "limitation of economic valuation models that aggregate across contexts" may be too technical for a clear grasp by policy makers (Philippe MacClenahan, Synergies Environnement)	This text has been removed.
1279	65892	SPM	12	9	0	0	In fact, the following two paragraphs are related to energy and so, it is suggested to replace "key economic sectors and services" by "Energy" (SPAIN)	This subsection has been revised to cover a broader range of information. Please see B-2.
1280	66077	SPM	12	9	0	0	Under heading "Key economic sectors and services" statements about transport and tourism (which can be important in the developing countries) are missing, see TS page 44 lines 5 to 16. (FINLAND)	Material on transport and tourism are included in the Technical Summary, but these have not been included in the SPM given that space constraints do not allow for this level of specificity.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1281	70996	SPM	12	9	12	12	As the two paragraphs under this subtitle both deal with energy, suggest that the subheading should be changed to "Energy". This first bold statement about changing energy demand is largely unchanged since the FAR. The SPM should be used to communicate new insights. Is there nothing that can be raised in the SPM about other "key economic sectors and services"? (CANADA)	This subsection has been revised to cover a broader range of information. Please see B-2.
1282	61789	SPM	12	9	12	19	Key economic sectors and services are essential for policymakers. This section should be enlarged and deal with more sectors and services. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This subsection has been revised to include estimates of aggregate economic impacts. Please see B-2.
1283	66011	SPM	12	9	12	19	A lot of crucial key sectors are missing in these lines (see Chapter 10). Please add! (Klaus Eisenack, Carl von Ossietzky University Oldenburg)	This subsection has been revised to cover a broader range of information, and additional sectors are discussed in the Technical Summary but are not included here, given that space constraints do not allow for this level of specificity. Please see B-2.
1284	79837	SPM	12	9	12	19	This part seems to address the energy Sector only. If this is the case, please consider to reflect this in the heading on line 9. (NORWAY)	This subsection has been revised to cover a broader range of information. Please see B-2.
1285	58063	SPM	12	9	12	20	Overall it is observed that the micro- small and medium businesses are not considered at all in this report and they are not mentioned in the summary either. Although I do not know the statistics I would suspect that most livelihood orientated projects, aiming to increase community resilience through livelihoods should be formal and would become small or medium business. However such businesses perhaps the most vulnerable to CC are rarely mentioned. (Carmen Lacambra Segura, Grupo La era)	This subsection has been revised to cover a broader range of information. Please see B-2.
1286	70607	SPM	12	11	0	0	Suggest "would" is changed to "will" to be consistent with language used in other parts of the SPM (NEW ZEALAND)	The usage of "would" has been eliminated in this text.
1287	70261	SPM	12	11	12	11	Change "would" to "will". (SWEDEN)	The usage of "would" has been eliminated in this text.
1288	79229	SPM	12	11	12	11	"and" should be replaced by "but". (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	"And" has been retained, as these may not be paired in every context.
1289	80328	SPM	12	11	12	12	"climate change would reduce" -- As the WGI AR5 report shows in the observations chapters 2 to 4 (and supported by the paleo chapter 5), climate change is happening. The current phrasing leaves open the possibility that climate change is not happening, which is inconsistent with the WGI assessment. Suggest to change to "Further climate change" if this refers to the projected changes ahead. (Gian-Kasper Plattner, IPCC WGI TSU)	The usage of "would" has been eliminated in this text. Please see B-2.
1290	77540	SPM	12	11	12	13	Move this paragraph below paragraph in the lines 15-19 because this last paragraph is more general (SWITZERLAND)	This text has been combined in one paragraph. Please see B-2.
1291	76188	SPM	12	11	12	15	The use of the term "would" is confusing. What is the intent of this qualification to the findings? (UNITED STATES OF AMERICA)	The usage of "would" has been eliminated in this text. Please see B-2.
1292	59785	SPM	12	11	12	19	The subtitle 'key economic sectors and services' implies the following section will contain a broader discussion than what is contained in the two paragraphs. (AUSTRALIA)	This subsection has been revised to cover a broader range of information. Please see B-2.
1293	79230	SPM	12	11	12	19	This section also seems unbalanced - why only mention energy? there is no mention of impacts on other valuable infrastructure, including the impact of changing extremes on buildings etc. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This subsection has been revised to cover a broader range of information. Please see B-2.
1294	79838	SPM	12	11	12	51	Some main findings start with "Climate change would ...." (lines 11 and 15), while some starts with "Climate change will ...."(lines 45 and 51). Do "would" and "will" mean different things? Please check for consistency in wording. (NORWAY)	The usage of "would" has been eliminated in this text. Please see B-2.
1295	66076	SPM	12	12	12	12	"Energy demand will ALSO be..." (FINLAND)	This text has been removed.
1296	63954	SPM	12	12	12	13	Please insert the more specific statement "Energy demand will be influenced by changes in demographics (upwards by increasing population and decreasing average household size), lifestyles (upwards by larger floor area of dwellings), the design and heat insulation properties of the housing stock, the energy efficiency of heating/cooling devices, and the abundance and energy efficiency of other electric household appliances." Source: TS P 43 L 37-40. Rationale: Low abundance will significantly reduce energy demand, direction of changes in demographics and lifestyles is explicitly described. In addition, Ch. 10.2.5. summarizes that "climate change per se will likely increase the demand for energy in most regions of the world". This is an important result and should be considered in the executive summary of ch. 10 as well (GERMANY)	This text has been removed. This final suggestion has not been included, as the included text follows the relevant bold finding presented in the Chapter 10 executive summary.
1297	70608	SPM	12	15	0	0	Suggest "would" is changed to "will" to be consistent with language used in other parts of the SPM (NEW ZEALAND)	The usage of "would" has been eliminated in this text. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1298	70262	SPM	12	15	12	15	Change "would" to "will". (SWEDEN)	The usage of "would" has been eliminated in this text. Please see B-2.
1299	80329	SPM	12	15	12	16	"climate change would affect...depending on..." -- As the WGI AR5 report shows, climate change is happening. The current phrasing leaves open the possibility that climate change is not happening, which is inconsistent with the WGI assessment. Suggest to change to "Further climate change" if this refers to the projected changes ahead. (Gian-Kasper Plattner, IPCC WGI TSU)	The usage of "would" has been eliminated in this text. Please see B-2.
1300	68421	SPM	12	15	12	19	It is hard to understand from the tekst why this example (i.e. water availability for cooling of thermal and nuclear power plants) is specifically mentioned? Hydro power generation loss due to reduced flows from diminished glaciers could reach 60% reduction which is a significant issue for Europe (Scandinavia) BC, Canada (51% of power is hydro electric) (NETHERLANDS)	This text has been removed.
1301	79839	SPM	12	15	12	19	It seems to us that the bold text may underestimate that some of the impacts may be quite severe if not properly handled. Furthermore in the body of the text in this para is unbalanced in relation to the description of other issues such as REDD+ and biofu (NORWAY)	The previously bold text has been retained in the SPM as a description of differential impacts on the energy sector. The nonbold text has been removed. Please see B-2.
1302	61790	SPM	12	16	12	19	The statement on energy production appears too short and vague, considering the central importance of energy supply for economic and social welfare. Impacts on hydropower should be included. Furthermore, at least the sign of impacts (in different regions) should be included wherever possible. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been specified to the extent possible based on the underlying chapter assessment. Please see B-2.
1303	63955	SPM	12	16	12	19	Add sentence: "Gradual changes in various climate attributes and possible changes in the frequency and intensity of extreme weather events will progressively affect operations." Rational: this is a robust finding and shows the challenge for the energy sector, sentence taken from Chapter 10 executive summary (P3 L15). (GERMANY)	The general effects of more frequent an/or severe weather events are included in the revised paragraph. Please see B-2.
1304	63956	SPM	12	17	12	18	"...but several options are available to cope with reduced water availability" seems to be too optimistic and should be re-considered. (GERMANY)	This text has been removed.
1305	60515	SPM	12	18	0	0	What are these options? Energy analysts advise decommissioning of such plants (Hélène CONNOR LAJAMBE, HELIO International)	This text has been removed.
1306	70609	SPM	12	18	0	0	Suggest "would" is changed to "will" to be consistent with language used in other parts of the SPM (NEW ZEALAND)	The usage of "would" has been eliminated in this text. Please see B-2.
1307	70263	SPM	12	18	12	18	Change "would" to "will". (SWEDEN)	The usage of "would" has been eliminated in this text. Please see B-2.
1308	78107	SPM	12	18	12	19	In what sense? Higher temperature will damage electricity networks? (Philippe MacClenahan, Synergies Environnement)	This text has been removed.
1309	80330	SPM	12	18	12	19	"climate change would...." -- As the WGI AR5 report shows, climate change is happening. The current phrasing leaves open the possibility that climate change is not happening, which is inconsistent with the WGI assessment. Suggest to change to "Further climate change" if this refers to the projected changes ahead. (Gian-Kasper Plattner, IPCC WGI TSU)	The usage of "would" has been eliminated in this text. Please see B-2.
1310	60516	SPM	12	19	0	0	CC is already affecting their performance (Hélène CONNOR LAJAMBE, HELIO International)	This text has been removed.
1311	68251	SPM	12	20	0	0	Climate-related disasters already affect more than 200 million people every year (Climate Change and Hunger: Towards a WFP Policy on Climate Change. Rome, World Food Programme, 2011). For the 2.6 billion people who live on less than US\$ 2 a day, climate shocks can trigger powerful downward spirals in human development. Whereas high-income people can cope with shocks through private insurance, by selling off assets or by drawing on their savings, the poor face a different set of choices. They may have no alternative but to reduce consumption, cut nutrition, take children out of school or sell the productive assets on which their recovery depends. These are choices that limit human capabilities and reinforce inequalities; they are avoidable low human development traps. While climate change and extreme weather events affect multiple aspects of people's lives, the impact on health and nutrition and the ability to work or learn are significant. The most important health impacts are those determined by the basic requirements for health – clean air, safe drinking water, sufficient food and secure shelter – and are also reflected in more frequent injuries and increases in social inequities. Climate risks can also damage health infrastructure, undermining the provision of health service (Michael AJ et al. Climate change and human health – risks and responses. Geneva, World Health Organization, 2003). While climate change affects human health systems both as a result of sudden climate-related emergencies (e.g. extreme heat, floods and droughts	No specific suggestion is made. Many of these topics are discussed in the subsections of B-2 on human health, human security, and livelihoods and poverty, and are discussed more extensively in the underlying chapters.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
							human health systems both as a result of sudden climate-related emergencies (e.g. extreme heat, floods and droughts, tropical storms and changing patterns of infection) as well as chronic stresses (e.g. water shortages, malnutrition, psychosocial stress, displacement, migration and conflicts), WHO estimates that ultimately the greatest health impacts may be from gradual increases in pressure on the natural, economic and social systems that sustain health and which are already under stress (38. Protecting health from climate change: Connecting science, policy and people. Geneva, World Health Organization, 2009) Impacts on health in developing countries are already visible. It has been estimated that by the year 2004, the modest warming that had already been occurring since the 1970s had already caused over 140 000 additional deaths annually (39. McMichael A et al (eds). Comparative Quantification of Health Risks: Global and Regional Burden of Disease due to Selected Major Risk Factors. Geneva, World Health Organization, 2004). In many parts of the world, climate change may significantly worsen the situation and contribute to the spread of HIV, due to the impacts of escalating poverty, population displacement, and places an even greater burden on health care systems (Climate change and AIDS: a joint working paper. Nairobi, United Nations Environment programme and Joint United Nations Programme on HIV/AIDS, 2008.) Studies have shown that children aged two or less born during a drought are over 70% more likely to be malnourished than children born at other times (41. Human Development Report 2007/2008. Fighting climate change: human solidarity in a divided world. New York, United nations Development Programme, 2007). In the years following floods, wasting and stunting rates among preschool children have been found to increase due to reduced access to food, increased difficulties of providing proper care, and greater exposure to contaminants (Displacement due to natural hazard-induced disasters. Global estimates for 2009 and 2010. Oslo, Norwegian Refugee Council and Internal Displacement Monitoring Centre, 2011). Under- and malnutrition has a profound impact on a child's ability to grow, learn and rise out of poverty (Martinez R and Fernandez A. The cost of hunger: Social and economic impact of child undernutrition in Central America and the Dominican Republic. Santiago de Chile, Economic Commission for Latin America and the Caribbean and the World Food Programme, 2007). Climate change could act as a significant 'hunger risk multiplier' (Climate Change and Hunger: Towards a WFP Policy on Climate Change. Rome, World Food Programme, 2011). By 2050, the risk of hunger is projected to increase by 10 to 20% compared to a no climate change scenario, solely due to productivity losses. Calorie availability in 2050 is likely to have declined relative to 2000 levels throughout the developing world: 24 million additional malnourished children, 21% more than today, are anticipated, almost half of them in sub-Saharan Africa (Climate Change and Hunger: Responding to the Challenge. Rome, World Food Programme, 2009). Taking other, socioeconomic factors into account, the figure could be much higher. For example, with local production declining income opportunities and purchasing power of small-scale producers, as well as seasonal workers dependent on harvesting and crop-processing, will decrease. At the same time, prices for the most important crops, including rice, wheat, and maize could increase by up to 150% by 2060. Recent studies argue that food prices will more than double in the next 20 years (4Bailey R. Growing a Better Future. Food Justice in a Resource-Constrained World. Oxford, Oxfam, 2011) and increase by an average of over the coming decade (OECD-FAO Agricultural Outlook 2011-2020. Paris, Organisation for Economic Co-operation and Development and the Food and	
1312	68252	SPM	12	20	0	0	Efforts to reduce vulnerability have often focused on technological innovations, for example improved crop varieties or more resistant infrastructure. Climate-proofing development is critical, but it is important that this process is not limited to 'end-of-pipe' approaches that address symptoms or outcomes rather than causes of vulnerability. As this chapter outlined, the causes of climate change vulnerability and impacts are often socioeconomic ones. Investing in human and social capital sets the stage for and maximizes the impact of adaptation interventions. Similarly, robust institutions, well informed about current and future impacts of climate change, will help people and governments to prepare, design and implement an effective response to climate impacts and increase the resilience of social institutions. Adaptation that is to benefit the most vulnerable people should therefore comprise broader developmental and resilience-building measures that empower people and reduce socially determined vulnerability as well as specific measures that reduce vulnerability to climate-related risks in the short and long term. The discussion of the social dimensions of climate change vulnerability and impacts also underscores that they are contextual and the result of socio-economic conditions, rather than a characteristic of particular social or demographic groups, like women, children, the elderly or the disabled. However, vulnerabilities are more likely to co-occur within some of these groups, because they also often lack resources, rights and access to decision-making processes; therefore, focusing adaptation interventions on their specific needs is essential. (Marek Harsdorff, ILO)	No specific suggestion is made. These topics are discussed in section C of the SPM.
1313	70997	SPM	12	21	0	35	Verb tense in this part on health is different from other parts in this section of the SPM. Suggest changing to future tense (i.e., "will include) to be consistent. (CANADA)	Text revised along these lines. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1314	65604	SPM	12	21	12	35	This ought to come across as a strong message but the language leaves me grasping for the meaning. Ch 11 is not much clearer. SPM appears to be projecting large loss of life but whether this means 10,000 or 1M - or some other scale is quite unclear! Policy makers need to know the scale of the challenge. (David Flint, Cass Business School)	This text has been revised for clarity. Please see B-2.
1315	71510	SPM	12	21	12	35	I fully agree with details given with regards to Human health! (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Thank you.
1316	85191	SPM	12	21	12	35	You are unconcerned at the effects on human health of the currently persistent cold Northern Hemisphere winters. (Vincent Gray, Climate Consultant)	Reductions in cold-related morbidity and mortality are included in the revised subsection. Please see B-2.
1317	63957	SPM	12	23	12	23	Instead of "ill-health" it should read "health". (GERMANY)	This text has been revised for clarity. Please see B-2.
1318	68422	SPM	12	23	12	23	"ill-health" is a strange and unnecessary concept, we propose to replace it by "health". (NETHERLANDS)	This text has been revised for clarity. Please see B-2.
1319	79231	SPM	12	23	12	23	Climate change impacts on ill-health' suggests the impacts affect those who are already ill. Is 'ill' needed? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-2.
1320	76189	SPM	12	23	12	25	The idea that increasing heat - and especially extended periods of extreme heat without relief - pose serious health risks especially to aging populations without technological or cultural adaptations in place could be much more clearly articulated here. (UNITED STATES OF AMERICA)	This topic is highlighted in the list of key risks presented in section B-1.
1321	65343	SPM	12	23	12	30	One of the most critical impacts on health is hypersensitivity for plant allergen like allergic rhinitis and asthma sensitized by tree pollens of which concentration is influenced by changes in ecosystem. This fact needs to be added. (REPUBLIC OF KOREA)	This topic is discussed in the underlying chapters, but is not included here due to space considerations.
1322	68423	SPM	12	23	12	30	Could you please clarify if all effects (for more than 10 causes) will increase in the coming decades or just the aggregated effect (NETHERLANDS)	This text has been revised for clarity. Please see B-2.
1323	58760	SPM	12	23	12	35	In the SREX report there was low confidence regarding the projections of flooding events, though more confidence in projections for an increase in heavy rainfall events that could lead to flooding. While the confidence regarding the statement on flooding seems to have increased somewhat (Chapter 3, WG2 SOD), the confidence isn't that high regarding projections for floods. Recommendation is to clarify whether the statement here refers to high confidence with respect to heavy precipitation events or if it refers to flooding events then consider adjusting the confidence level. Also, if storms become more intense but occur less frequently how will that tradeoff affect human health? (William Landuyt, ExxonMobil Research and Engineering)	Floods have been removed from this statement. Please see B-2.
1324	63958	SPM	12	24	12	24	Droughts should be included. (GERMANY)	This statement discusses direct effects of extreme events, and has been revised to focus on heatwaves and fires. Droughts are incorporated in the context of other items in this listing, such as under-nutrition resulting from diminished food production. Please see B-2.
1325	66029	SPM	12	24	12	24	Heat waves are expected to increase in all the world, but storms, fires and floods, not. Perhaps it will be better to include the words "in some regions". (Maria-Carmen Llasat, University of Barcelona)	Storms and floods have been removed from this statement, and the remaining statement does not imply applicability to every location in the world. Please see B-2.
1326	80331	SPM	12	24	12	24	Statements implies that there will be "more intense heat waves, storms, floods, fires". But this general statement seems not entirely consistent with the WGI AR5 Assessment. While it's ok for heat waves (WGI AR5 Chapter 12: medium confidence, likely in some regions) and short-duration storms (WGI AR5 Chapter 12: likely), it's not supported in this generality for floods (Note that fires are not specifically assessed by WGI AR5). (Gian-Kasper Plattner, IPCC WGI TSU)	Storms and floods have been removed from this statement. Please see B-2.
1327	70715	SPM	12	26	12	26	" after increased risk of ....to be added "air born allergens" and then continuation of the existing sentence" (Vladimir Kendrovski, World Health Organization Regional Office for Europe)	This is not supported by the underlying findings presented in Chapter 11.
1328	79232	SPM	12	26	12	26	The text says "increased risks of food and water-borne diseases" - why only increases? Surely it will depend on the climatic preferences of the individual pathogen, in some areas it might become unsuitable for the pathogen. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Reduced capacity of some disease-carrying vectors is mentioned in the revised paragraph. Please see B-2.
1329	79233	SPM	12	27	12	27	"..in some areas due to reduced exposure to cold.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1330	63960	SPM	12	28	0	0	Delete "reduction of disease-carrying vectors", since this pronouncement cannot be found in chapter 11.5. as such. (GERMANY)	Reduced capacity of some disease-carrying vectors is mentioned in the revised paragraph, in line with the final draft of Chapter 11. Please see B-2.
1331	63959	SPM	12	28	12	30	Awareness raising (on health effects of climate change) within the population and changes in (individual) behavior should be mentioned as well as one of the effective adaptation measures for health in the immediate term (compare Ch 11 P 26 L 21-22). (GERMANY)	This text has been revised in line with the final draft of Chapter 11. Please see B-2.
1332	76190	SPM	12	28	12	30	This extensive strategy explanation seems out of place in the SPM. (UNITED STATES OF AMERICA)	Relevant adaptation options are included in these subsections where available based on the underlying assessment findings.
1333	78139	SPM	12	32	0	0	This sentence could be better explored, which parameters of health, heat waves? Where? (Christiano de Campos, Petroleo Brasileiro SA)	This text has been revised for clarity. Please see B-2.
1334	61791	SPM	12	32	0	35	Physical health limits for an average global temperature do not make sense - be more specific. Box refers to 7 degrees globally? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity. Please see B-2.
1335	63961	SPM	12	32	12	32	Add the respective temperature increase above pre-industrial levels in brackets to ensure comparability as most other levels of warming are presented as above pre-industrial levels, and to increase policy relevance wrt to the 2C objective of UNFCCC. (GERMANY)	This text has been revised for clarity. Please see B-2.
1336	62456	SPM	12	32	12	33	The sentence "For..world" is not clear. I do not think that the temperatures after 2005 have increased 4°C above the 1986-2005 value. From this context, the next sentence also looks ambiguous. (INDIA)	This text has been revised for clarity. Please see B-2.
1337	68424	SPM	12	32	12	33	"... may have been exceeded ..." seems both lengthy and inaccurate, and we propose to replace it by "... may exceed ...". (NETHERLANDS)	This text has been revised for clarity. Please see B-2.
1338	79234	SPM	12	32	12	33	"For a global mean.." Comment: Appears to be a mixture of tenses - are we talking about the future or the past? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-2.
1339	79235	SPM	12	32	12	33	Talking about warming above 1986-2005 is potentially confusing, since references to warming are normally since pre-industrial times. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-2.
1340	79236	SPM	12	32	12	33	Not entirely sure what the section in bold actually means. Could be rephrased? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-2.
1341	79840	SPM	12	32	12	33	This refers to an increase of 4 degrees above 1986-2005 level. But then the bodytext refers to Box SPM.5., which describes the impact if the temperature rises above 4 degrees compared to pre-industrial level. It would have been useful if the 4 degrees ref (NORWAY)	This text has been revised for clarity. Please see B-2.
1342	80605	SPM	12	32	12	33	Why choose period 1986-2005 as the base time period? Traditionally, the temperature increasing is compared to the pre-industrial revolution. SUGGESTION: alter the base time period as the pre-industrial revolution, through which the temperature increasing extent can be more comparable. (Jiahua PAN, Chinese Academy of Social Sciences)	This text has been revised for clarity. Please see B-2.
1343	59786	SPM	12	32	12	34	Given the box on page 15 (Box SPM.5) refers to a 4 degree rise above pre-industrial, it is confusing that this statement refers to 4 degrees above a 1986 - 2005 baseline. If possible, baselines should be comparable. (AUSTRALIA)	This text has been revised for clarity. Please see B-2.
1344	70998	SPM	12	32	12	35	Human health is only depicted in two of the three regions considered in Figure SPM.5, and as risks are not greater at +4C than for several other sectors, presumably this same statement is applicable to many sectors? (CANADA)	This text has been revised for clarity (see B-2), and a general finding on risks of large magnitudes of warming is included in section B-1.
1345	79237	SPM	12	32	12	35	important limits to adaptation for health impacts may have been exceeded in many areas of a 4°C world...exceeding coping mechanisms etc...This suggests that ' it is very unlikely that humans will survive a 4°C global mean temperature increase'. If that's what the data says - I think this should be clearly stated. However, this conflicts with a later statement (p15-27, 15-29) that a 4°C world would see extreme heatwaves similar to Russia 2010 as normal ... with exceedance of human physiological limits in some areas at global temp rise of 7°C...when the earlier point states that most will not survive a 4°C rise.... (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity (see B-2), and the later box has been removed due to space considerations. A general finding on risks of large magnitudes of warming is included in section B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1346	80109	SPM	12	32	12	35	Loss of agricultural productivity is just one of the productivity losses. Heat strain decreases most forms of human performance (Pilcher et al. 2002, Hancock et al. 2007). Heavy physical work is always a risk in the heat due to the metabolic heat production of the worker. Use of protective garments increase the risk of heat strain even in moderate and cool thermal environment and decreases performance (Rissanen and Rintamäki 1997, Rintamäki and Rissanen 2006, Rissanen et al. 2008). Individual reasons like poor physical fitness or aging also decrease heat tolerance. Vulnerable occupations are e.g. firemen in forest fires, construction work, rescue work and maintenance of electrical power lines. References: Hancock PA, Ross JM, Szalma JL. A meta-analysis of performance response under thermal stressors. Hum Factors. 2007;49(5):851-77. Pilcher JJ, Nadler E, Busch C. Effects of hot and cold temperature exposure on performance: a meta-analytic review. Ergonomics. 2002;45(10):682-98. Rintamäki H, Rissanen S. Heat strain in cold. Ind Health. 2006;44(3):427-32. Rissanen S, Jousela I, Jeong JR, Rintamäki H. Heat stress and bulkiness of chemical protective clothing impair performance of medical personnel in basic lifesaving tasks. Ergonomics 2008;51(7):1011-22. doi: 10.1080/00140130701813160. Rissanen S, Rintamäki H. Thermal responses and physiological strain in men wearing impermeable and semipermeable protective clothing in the cold. Ergonomics 1997;40(2):141-50. (Hannu Rintamäki, Finnish Institute of Occupational Health)	Reduced labor productivity is discussed in this subsection. Please see B-2.
1347	80332	SPM	12	32	12	35	The 4°C above present-day might be misleading as this temperature targets are most often reported relative to pre-industrial. In addition, the "may have been exceeded" is unclear. Isn't this a projection and thus the statement should say "will [likelihood/confidence] be exceeded?" Finally, the bullet refers to impacts related to SLR and storms as a consequence of this 4°C above 1985-2005, but it's unclear what the basis is for the projected SLR and storms. Please clarify which scenario this is based on to link it more closely with the corresponding assessment in WGI AR5 Chapters 12 (storms) and 13 (SLR). (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been revised for clarity (see B-2), and a general finding on risks of large magnitudes of warming is included in section B-1.
1348	65665	SPM	12	33	12	33	Insert "limits" to give "These limits". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been revised for clarity, and this specific wording has been removed. Please see B-2.
1349	78138	SPM	12	33	12	35	Box SPM5 is not relating sea-level rise, storms, agricultural productivity with health impacts. This sentence should be rewritten or deleted (Christiano de Campos, Petroleo Brasileiro SA)	This text has been revised for clarity, and the second sentence has been removed. Please see B-2. The later box has also been removed due to space considerations. A general finding on risks of large magnitudes of warming is included in section B-1.
1350	66171	SPM	12	34	12	34	"storms" should be replaced by "extreme events". (Dawei Zheng, China Agricultural University)	This text has been removed.
1351	66194	SPM	12	34	12	34	The word of 'storms' is too specific, probably there are other events, so it is suggested to change 'Storms' as 'Extreme events'. (Yinlong Xu, Institute of Environment and Sustainable Development in Agriculture (IEDA), Chinese Academy of Agricultural Sciences (CAAS))	This text has been removed.
1352	70610	SPM	12	34	12	34	Is there also evidence for the effects of wind? ie: 'storms, loss of agriculture productivity, and daily temperature/humidity/wind conditions that exceed coping mechanisms.' (NEW ZEALAND)	This text has been removed.
1353	80606	SPM	12	34	12	34	The word "storm" is too specific, there may be other climate disasters. SUGGESTION: alter "storms" as "extreme events". (Jiahua PAN, Chinese Academy of Social Sciences)	This text has been removed.
1354	58870	SPM	12	35	0	0	Please indicate page where to find box 5 (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	This box has been removed due to space considerations.
1355	61792	SPM	12	35	0	0	Reference to Box SPM.5 is misleading since the box includes a summary of anticipated impacts of a temperature increase of 4°C in general and not on human health specifically (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This box has been removed due to space considerations.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1356	68253	SPM	12	36	0	0	Creating a vicious cycle, climate change is multiplying many of the same socioeconomic factors that make people vulnerable to climate change in the first place. Through its impact on the systems and institutions that sustain human health and well-being, including ecosystems, livelihoods and employment, and the provision of social services, it is perpetuating existing drivers of vulnerability (Protecting health from climate change: Connecting science, policy and people. Geneva, World Health Organization, 2009). Africa alone is home to more than 650 million people who are dependent on rain-fed agriculture in environments that are already affected by water scarcity and land degradation, which will be further accelerated by climate change. Two-thirds of Africa’s arable land could be lost by 2025 ( How to feed the world in 2050. Rome, Food and Agriculture Organization of the United Nations, 2009). Dealing with even greater resource scarcity in times of growing demand for food poses tremendous governance challenges at the community, as well as the national and international level, potentially spurring instability, conflict and displacement – already major drivers of vulnerability (UNHCR, WB, UNU, UN Security Council, Meeting April 17, 2007; ACNUR.) People on the move, particularly those displaced by climate impacts, suffer from lack of access to health care services, including reproductive health services, which can lead to consequences that far outlast the direct physical impacts of particular climate events. Climate-related disasters can damage the very service-delivery infrastructures that help secure health and well-being, such as health services, utilities and municipalities, energy and communications systems, police, etc. Responding to increasing extreme events may also overburden social protection systems and safety nets. 5.3 billion people already lack any access to social security coverage (Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World. Nairobi, ILO and United Nations Environment Programme, 2008) and existing policies and social protection systems are often inadequate to enhance resilience and adaptive capacity or to mitigate negative climate change impacts on employment. Climate change could result in a spike in unemployment and in the deterioration of working conditions in urban areas. For example, climate-related damages to transport, industrial infrastructures and settlements will compromise workers’ ability to reach their workplaces (Climate change, its consequences on employment and trade union action, a training manual for workers and trade unions. Nairobi, United Nations Environment Programme,, 2008). Given the breadth of factors associated with vulnerability to climate change, and how pervasive social dimensions are among those factors, the wide range of potential impacts of climate change should not come as a surprise. Due to existing social marginalization, discrimination or insufficient protective policies and institutions, the impacts of climate change are also likely to be unevenly distributed among different social groups. Certain characteristics such as age, gender, ethnicity, social class and caste are strongly associated with social vulnerability. For example, gender norms, roles and relations already determine different impacts on women and men, including in relation to health (Gender, climate change and health. Geneva, World Health Organization, 2011). Impacts also depend heavily on where people are living and the assets and resources they bring to bear for resilience. The world is growing increasingly urban; already, more than half of the population lives in urban areas, and by 2050 it could be as high as two thirds State of World Population: Unleashing the Potential of Urban Growth. New York, United Nations Population Fund, 2007). Nearly all urban growth will happen in cities in the developing world, where more than 50% of the current population lives in urban slums (The challenge of slums: Global report on human settlements 2003. London, UN-HABITAT, 2003). Highly vulnerable locations, poor housing materials, limited access to infrastructure and lack of secure tenure make people in urban slums among those most likely to experience severe climate impacts. This is exacerbated by the fact that 15% of the world’s urban population currently lives in cities located in low elevation coastal zones, many in the developing world, which are highly exposed to impacts of sea level rise and extreme weather conditions. These cities are also experiencing rapid growth, as people move to them for economic opportunities, often to slums, and at the same time expose themselves to greater risk of climate impacts (19. Guzman, JM et al (Eds). Population dynamics and climate change. New York and London, United Nations Population Fund and International Institute for Environment and Development, 2009). (Marek Harsdorff, ILO)	No specific suggestion is made. Many of these topics are discussed in various sections of the SPM, and are discussed more extensively in the underlying chapters.
1357	62889	SPM	12	36	12	41	A point is suggested to be added: 'ignites conflicts especially over water and resources sharing'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	The revised section discusses interactions between climate change and conflict. Please see B-2.
1358	63338	SPM	12	37	0	0	The section on human security should be edited and condensed. (IRELAND)	This section has been edited and shortened. Please see B-2.
1359	62457	SPM	12	37	12	37	This section on human security is very important but here it is full of generalities (INDIA)	This section has been edited with this comment in mind to increase specificity to the extent possible. Please see B-2.
1360	66074	SPM	12	37	12	56	The SPM integrates key messages (three bullets) from human security chapter. We find the present formulations quite general and we invite more focused text, for example what kind of security risks may emerge. (FINLAND)	This section has been edited with this comment in mind to increase specificity to the extent possible. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1361	80106	SPM	12	37	12	56	The SPM integrates key messages (three bullets) from human security chapter currently in an "acceptable" manner but must be reviewed and sharpened (Mikko Halonen, Gaia Consulting Oy)	This section has been edited with this comment in mind to increase specificity to the extent possible. Please see B-2.
1362	77494	SPM	12	39	0	0	I find the emphasis on human security in the summary for policymakers to be problematic, focusing on livelihoods, culture. The diverse findings in the literature on climate and conflict, even though they are contested, warrant more discussion. See my critique of the conceptual application of human security below. The most important potential impact on human security - death from hazard exposure -- gets little treatment. 260,000 Somalis died after the 2011 famine. While the climate contribution to the droughts of that year are contested, these are the kinds of events that warrant more discussion in the SPM section on human security. It would seem like a pretty important impact on human security that happened because of a failed harvest, coupled with failed governance, such that local and international aid could not get to the people who needed it. These kinds of potential effects of climate change (coupled with other factors) do not get adequate treatment in the human health section so if not in human health or human security, where? <a href="http://www.aljazeera.com/news/africa/2013/05/201352113337568731.html">http://www.aljazeera.com/news/africa/2013/05/201352113337568731.html</a> (Busby Joshua, University of Texas-Austin)	Mortality related to hazard exposure is addressed in the human health subsection of B-2, and interactions between climate change and conflict are addressed in the human security subsection.
1363	79238	SPM	12	39	12	39	Soften – it reads as too definite for the relationship between climate change and human security - Insert the word 'can' or 'could' or 'has the potential to', so it reads e.g. 'Climate change could threaten human security...' - (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1364	79239	SPM	12	39	12	40	How does climate change undermine identity? Can you give an example here? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1365	77361	SPM	12	39	12	43	Climate change threatens human security but also human rights and must be seen as a threat to such. (Maria Jose Galarza, Ministerio del Ambiente del Ecuador)	This text has been removed.
1366	76191	SPM	12	39	12	56	The statement in the underlying chapter on page 5 (lines 34-35) that "highly confident statements" are "not meaningful" in this context/on this issue should be reflected in the SPM as well. As written, this reads as an overstatement of the case. (UNITED STATES OF AMERICA)	This material has been revised in line with the underlying assessment in Chapter 12 and other chapters of the Working Group II contribution to the AR5. The subsequent statement in Chapter 12 indicates good evidence about many of the discrete links in the chains of causality between climate change and human insecurity.
1367	60517	SPM	12	41	0	0	It also could trigger wars for resources, space, ... (Hélène CONNOR LAJAMBE, HELIO International)	This text has been removed.
1368	79841	SPM	12	42	12	42	Since all populations are dependent on resources in one way or the other, maybe better to use "resource constrained". (NORWAY)	This text has been removed.
1369	68425	SPM	12	45	12	46	Please check if the level of confidence attributed to the statement "Climate change will have significant impacts on forms of migration that compromise human security (medium agreement, medium evidence)." is consistent to the supporting material in the main text of Chapter 9. According to Chapter 9 page 14 line 21, "extreme events might lead to changed patterns of migration", while "the impacts of climate change are likely to affect population distribution and mobility." The conclusion in Chapter 9 page 14 line 50 shows "the detection of the effects of climate change on infra-rural and rural- to urban migration remains a major challenge". Considering the confidence level in these main texts, maybe in the SPM the agreement and evidence level could be back to a lower level and change the expression to "Climate change might (or " is likely to" ) have impacts on forms of migration that compromise human security." (NETHERLANDS)	These evidence and agreement statements have been revised in line with the final draft of Chapter 12, as well as Chapter 9. Please see B-2.
1370	65605	SPM	12	45	12	49	Richer countries in temperate regions will have the greatest capacity to absorb migrants but we can already see growing resistance to immigration. This will make migration a less effective adaptation measure. (David Flint, Cass Business School)	This text has been removed.
1371	79240	SPM	12	45	12	49	Human security - related to the issue of mobility as part of the adaptation response to climate change, it's important to recognise the concept of 'trapped populations' where environmental change has eroded financial and social capital rendering populations unable to move (p 13 raises poverty traps). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This is addressed in the revised text. Please see B-2.
1372	62458	SPM	12	51	12	52	The influence of climate change on national security policy may be highlighted. (INDIA)	This topic is addressed in the last paragraph of this subsection. Please see B-2.
1373	60444	SPM	12	51	12	56	"shared transboundary water resources" should be "changes in shared transboundary water resources" and examples of such states and/or regions could be included in the listing of examples. (DENMARK)	Text has been revised for clarity. Please see B-2. Examples have not been included due to space considerations.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1374	70999	SPM	12	52	12	54	The statement that "some states are experiencing major challenges to their territorial integrity, including Arctic countries, small island states and other states highly vulnerable to sea level rise", does not seem supported by the referenced sections with respect to Arctic countries. 1. Section 12.5.4. may not even be a correct reference as this section is titled Peace-building activities in promoting adaptation and its three short paragraphs do not have text to support this statement. 2. Box 12.6 focusing on security and the Arctic emphasizes that territorial boundary disputes are unlikely to occur among Arctic countries. Recommend that the sentence beginning with "Some states..." (lines 52-55) be removed. (CANADA)	This statement has been revised in line with the final draft of Chapter 12. Mention of Arctic countries has been removed. Please see B-2.
1375	62459	SPM	12	53	12	56	The linkage of sea level rise and other risks with the national security may not be appropriate. (INDIA)	This statement has been clarified and revised in line with the final draft of Chapter 12. Please see B-2.
1376	63962	SPM	12	56	0	0	Please introduce a further finding from TS (P 47, L 28-29): "Climate change effects cultures....and local forms of knowledge (high agreement, medium evidence) [12.3]. (GERMANY)	This material has been considered but has not been included due to space considerations.
1377	79241	SPM	12	56	12	56	Comment: communication, dialogue and diplomacy also play roles. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement about robust institutions does not imply that it is the only relevant factor.
1378	66148	SPM	13	0	0	0	"Eras of climate responsibility and climate options". These are new terms, not in the current literature. They will need more explanation (and be prepared to allow discussion time at Plenary!). Authors need to ask themselves: Are these new really necessary? If the terms really lend new light, then they deserve more discussion in the text, especially with respect to what they imply about required actions during the two eras. You might be best advise to omit the terms on the principle that it is always best to keep things simple in the SPM. (Martin Parry, Imperial College)	Comment misplaced. The second paragraph of section A-3 introduces these eras and the roles of adaptation and mitigation in influencing outcomes in these two timeframes.
1379	62463	SPM	13	0	13	0	Box 19-2: May also be examined (INDIA)	Comment misplaced. Definitions of core terms are presented in Box SPM.1.
1380	62461	SPM	13	1	13	10	Livelihood and poverty may be linked with human security. (INDIA)	Separate subsections are retained to match the structure of the underlying chapters.
1381	78140	SPM	13	2	0	0	There is no evidence where climate change can increase economic growth, poverty reduction, food security anywhere never? Can't we bring some positive impacts? (Christiano de Campos, Petroleo Brasileiro SA)	Positive impacts are presented where supported by the assessment of the underlying knowledge base.
1382	58317	SPM	13	2	13	2	The state that "weather events and climate" is not precise.It should change to "extreme weather events". (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	This term has been removed and the text has been revised for clarity. Please see B-2.
1383	79242	SPM	13	4	13	4	"and impede poverty reduction.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The existing phrasing is more compact.
1384	80333	SPM	13	4	13	4	"weather events and climate" -- Should this be "weather and climate events"? If not, then "climate" probably needs to be changed to "climate change" (Gian-Kasper Plattner, IPCC WGI TSU)	This term has been removed and the text has been revised for clarity. Please see B-2.
1385	80607	SPM	13	4	13	4	The usage of "weather events and climate" is inappropriate. SUGGESTION: alter "weather events and climate" as "extreme weather events". (Jiahua PAN, Chinese Academy of Social Sciences)	This term has been removed and the text has been revised for clarity. Please see B-2.
1386	68427	SPM	13	4	13	6	Please note that supplied confidence, agreement and evidence interval do not match the statements. In the TS the intervals applies for the statement "most severe impacts are projected....."In SPM they are used for another statement (NETHERLANDS)	The confidence statement for the revised paragraph matches that presented in Chapter 13.
1387	71000	SPM	13	4	13	6	Can "future impacts of weather events and climate" be replaced by "climate change"? As the former would obviously occur in the absence of climate change, the conclusion seems to be that weather and climate are bad for economic growth and poverty reduction. Paragraph needs to place climate change as one of many factors that will impact future economic growth and poverty reduction. (CANADA)	This term has been removed and the text has been revised for clarity. Please see B-2.
1388	76192	SPM	13	4	13	6	This language is too strong; Use "may" instead of "will" to describe the impacts of climate change on economic growth and poverty. (UNITED STATES OF AMERICA)	Will has been retained, in line with the underlying assessment in Chapter 13. The assignment of medium confidence provides an indication of the degree of certainty in the conclusion.
1389	68426	SPM	13	4	13	10	It seemsn that here there are differences with uncertainty terminology compared to section 10.9. There are more chapters that are being referred to in this paragraph. However, according to section 10.9, the magnitude of the effect of climate change on decreased productivity and economic growth is not well understood. According to the chapter, this is statement only has "high agreement, limited evidence". In the SPM statement, it says "medium confidence". (NETHERLANDS)	The confidence statement for the revised paragraph matches that presented in Chapter 13.
1390	60655	SPM	13	5	13	5	The reference to 13.2.2.4 seems insufficient to justify the statement that new poverty traps are particular to urban areas; suggest deleting the last phrase ", the latter particularly in urban areas" (Haroon Kheshgi, ExxonMobil Corporate Strategic Research)	This text has been revised in line with the final draft of Chapter 13. Please see B-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1391	76193	SPM	13	5	13	5	This sentence refers to food security but makes no reference to Cpt 7. (UNITED STATES OF AMERICA)	Chapter 13 also discusses food security in the context of livelihoods and poverty.
1392	56985	SPM	13	5	13	28	Include as many regions as possible in providing these examples so as to depict a regional balance in reporting (KENYA)	Improved balance of regional examples has been achieved in the revised summary for policymakers.
1393	63963	SPM	13	6	0	0	The statement "Climate Change constitutes an additional burden to the rural and urban poor. It acts as a threat multiplier, often with negative outcomes for livelihoods (very high confidence, based on high agreement, robust evidence)." is policy relevant and should be inserted at SPM P 13 L 6 (Source: TS P 17 L 40-41). The statement emphasizes the exposure and vulnerability particularly of rural and urban poor, and underlines the conjunction of climatic and non-climatic drivers. Statement is meaningful (very high confidence) to pick out social equity as a central theme of adaptation. (GERMANY)	This statement is presented in section A-1, as it is a statement about general understanding of vulnerability and exposure rather than a statement specifically about future risks.
1394	79243	SPM	13	6	13	9	"Will create new poverty pockets" Seems like a strong statement - we would like to see a confidence value associated with this and links to evidence in the underlying report. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Following the convention used throughout the SPM and explained in Box SPM.2, within paragraphs of this summary, the confidence, evidence, and agreement terms given for a bold key finding apply to subsequent statements in the paragraph, unless additional terms are provided. The referenced chapter sections provide the support for the finding.
1395	70785	SPM	13	8	0	0	*Observation: The inclusion of indigenous peoples should be unqualified (i.e. not only those indigenous peoples affected by sea-level rise and relocation will be affected, but rather the majority of indigenous people with traditional livelihoods will be more vulnerable to food insecurity and other poverty stressors). It should perhaps also be expanded to include 'local communities', to include those communities (particularly in Africa) who are not officially identified as indigenous to their region but nonetheless have similar livelihoods and vulnerabilities. *Suggested text: Climate change will exacerbate multidimensional poverty in low and lower middle-income countries, including high mountain states and countries with indigenous people and local communities, and... (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	This specific text has been removed.
1396	64893	SPM	13	8	13	8	Recommend deleting the descriptor "affected by sea-level rise and relocation" after indigenous peoples -climate change will exacerbate multip dimensional poverty for all indigenous peoples whose livelihoods dependon natural resources (see in Sub-sahara Africa and South Asia Kristjanson et al.(2010) Livestock and Women's Livelihoods: A review of the Recent Evidence, Discussion Paper No. 20 Nairobi, Kenya ILRI as well as Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation" Paris, UNESCO and Darwin, UNU, pg 4 (Amejali Ramos Castillo, United Nations University - Institute of Advanced Studies)	This specific text has been removed.
1397	79244	SPM	13	8	13	8	'.... And, create new poverty pockets...' – this is too confident and simplistic. Suggest inserting wording to soften e.g. '... and, contribute to creation of new...' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Following the convention used throughout the SPM and explained in Box SPM.2, within paragraphs of this summary, the confidence, evidence, and agreement terms given for a bold key finding apply to subsequent statements in the paragraph, unless additional terms are provided.
1398	79245	SPM	13	10	13	10	Comment: all of Africa, or particular region? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised for clarity. Please see B-2.
1399	68428	SPM	13	12	13	14	In the Chapter, only two (2) modest examples from Ethiopia and Brazil were stated (Chapter 13, page 21, line 9-14), so stating that "Social protection programmes can help the chronically poor reduce risk and protect assets during crises..." is an insufficient founded generalisation. (NETHERLANDS)	This text has been revised and broadened, in line with the final draft of Chapter 13. Please see B-2.
1400	63339	SPM	13	12	13	16	Need to clarify the science behind these statements, will vary depending on socio-economic system. (IRELAND)	This text has been revised and broadened, in line with the final draft of Chapter 13. Please see B-2. The support for this statement can be found in the referenced chapter sections.
1401	65893	SPM	13	12	13	16	This paragraph has no reference nor relation with impact and vulnerability to climate change (SPAIN)	Adaptation options relevant to specific risks are included in this section. Please see B-2.
1402	60518	SPM	13	14	0	0	Add the rights of women (Hélène CONNOR LAJAMBE, HELIO International)	This topic is not discussed explicitly in this paragraph, but is addressed elsewhere in this section, for example in the subsection on rural areas.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1403	79842	SPM	13	14	13	16	Very infomative finding for consideration and development of adaptation measures and implementation. Please consider highlighting this finding in bold. (NORWAY)	This text has been removed due to space considerations, but similar points are made in general terms in section C-1.
1404	68429	SPM	13	16	13	16	Please check the appropriateness of the reference quoted [13.4] (NETHERLANDS)	Reference revised. Please see B-2.
1405	62460	SPM	13	18	13	45	SPM.5: The regional risks section needs to give a clear indication of primary risks by region and by sector. Table SPM. Does this quite well. But Figure SPM.5 is extremely hard to read. It is unclear how the colour codes are to be interpreted. And what the meaning of the "present" risk level line is. Moreover, why are these diagrams only for 3 regions of the world? Asia, Latin America, Australasia are left out. (INDIA)	This figure has been removed.
1406	71001	SPM	13	20	0	45	This section is not well developed to provide reader the context to understand the associated figures - it is very complex and hard to follow. Suggest reviewing and revising. (CANADA)	This section has been substantially revised. The figure has been removed, and the associated table and its caption have been revised to provide the necessary context in a compact form. Please see B-3.
1407	76194	SPM	13	20	13	24	It is too bad that this section and many others do not incorporate assessment of consequences of potentially higher temperature increases (e.g., 6 deg C). These future scenarios are not out of the question and the associated risks ought to be given as much attention as risks associated with less warmer scenarios. (UNITED STATES OF AMERICA)	The full range of potential outcomes is assessed based on the available knowledge base. Section B-1 includes a summary paragraph on the risks of large magnitudes of warming.
1408	79035	SPM	13	20	13	24	Could you please come up with a different term then "era" for these two 10- or 20-yr timespans? The use of "era" is rather pathetic, not scientific. This applies to other places in this report, too (figures, tables, text). (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	In general usage "era" is used for a variety of timeframes. The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these terms.
1409	79843	SPM	13	20	13	37	This is the first time the "era of climate responsibility" for 2030-2040 is used. What is the rationale for using this time periode? Please explain it better. (NORWAY)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1410	80334	SPM	13	21	13	14	"era of climate responsibility, era of climate options" -- How have these eras been defined, what are the criteria to determine the start/end of these eras. What era is the time period between 2040 and 2080? We admit, we don't understand the concept of defining these eras. (Gian-Kasper Plattner, IPCC WGI TSU)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1411	58676	SPM	13	22	13	22	I don't understand why the two time series,namely 2030-2040 and 2080-2010, are selected, please give explanation. (chunfeng wang, State Forestry Administration, China)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1412	61793	SPM	13	22	13	22	"Era of climate responsibility" and "era of climate options" are not clearly defined here and it's not clear that they aid the discussion. Is there a simpler way of describing the key messages that could be included here for policy makers? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1413	68430	SPM	13	22	13	22	The two periods "era of climate responsibility" and "era of climate options" should be introduced somewhere and explained in the beginning of the SPM. As it is written now, the terms come out of the blue. (NETHERLANDS)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1414	70264	SPM	13	22	13	22	The expressions "era of climate responsibility" and "era of climate options" are unclear and should be explained better. (SWEDEN)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1415	79246	SPM	13	22	13	22	Eras of climate responsibility and climate options - whose terminology? Not sure that 'era of responsibility" or "era of climate options" are recognised terms, or a good ones to use, since actions of those with responsibility now will have effects into the distant future too. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1416	80608	SPM	13	22	13	22	Why choose the time period "2030-2040" and "2080-2100"? SUGGESTION: add explanation. (Jiahua PAN, Chinese Academy of Social Sciences)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1417	79247	SPM	13	23	13	24	Here, and elsewhere, the comparison is 2 dgree vs 4 degrees, might a more graduated assessment be possible (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Distinctions among temperature levels have been made to the extent possible based on the underlying knowledge base. Please see B-3.
1418	80335	SPM	13	26	0	0	Table SPM.4: 'Climate drivers' seems to be an odd term for what is a diverse grouping of climate elements/components, and CO2 would be the only real 'driver'. The inclusion of ocean acidification further complicates this grouping, as neither a driver, or component of climate. Suggest reconsidering this grouping of 'climate drivers'. (Gian-Kasper Plattner, IPCC WGI TSU)	These have been relabeled as "climate-related drivers of impacts" to clarify the terminology used here. Please see B-3.
1419	80336	SPM	13	26	0	0	Table SPM.4: Asia, climate driver(s) - As far as we are aware there is no literature relating extreme temperatures with impacts on glaciers. On the other hand, surely mean precipitation should be added as a driver of glacier changes and impacts on water resources in this region? (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been substantially revised and updated, and this specific entry no longer exists. A broader entry on water resources is included that does include precipitation-related drivers. Please see B-3.
1420	80337	SPM	13	26	0	0	Table SPM.4: Australasia - 'Risks from sea level rise very likely continue to increase beyond 2100....". Why is this statement made in regards to Australasia? Surely this same statement could equally have been made for Africa, Europe or Asia. This example highlights the somewhat random nature of this table, which doesn't seem to have any clear rationale for the selection of risks that are included for each region. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been substantially revised and updated, and this specific entry no longer exists. As explained in the caption of the revised table, key regional risks have been identified based on assessment of the relevant scientific, technical, and socioeconomic literature, as detailed in supporting chapter sections. They highlight salient issues in each region, without being comprehensive about risks for each region, given page constraints of the SPM. Please see B-3.
1421	80338	SPM	13	26	0	0	Table SPM.4: Central and South America - The combination of 'very likely' with 'may exacerbate' is not very useful, and no longer quantitative. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been substantially revised and updated, and this specific entry no longer exists. Please see B-3.
1422	70352	SPM	13	26	13	26	Table SPM-4 is very interesting. However, also sometime unclear, e.g. soemtime 2*2 burning embers are given (e.g. for Europe). Why (I understand difference between current (C) and fully adaptated (A). But why twice? (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This table has been substantially revised and updated, and this feature has been replaced by a clearer representation of risks for three timeframes: the present, near-term (here, assessed over 2030-2040), and longer-term (here, assessed over 2080-2100). Please see B-3.
1423	79248	SPM	13	26	13	26	SPM 4: o Should highlight the short and long-term mental and physical health impacts of flooding (raised on p12 but not specified) o Terrestrial ecosystems - countering the environmental degradation of ecosystems eg pressures on biodiversity and soil quality, through the innovative and sustainable agricultural practices eg zero-tillage and precision farming o Internal migration can be a positive adaptive response in the context of climate change. Migration can bolster resilience and livelihoods in the sending community through remittances and, thereby, enhance access to essential goods and services. Policy responses to migration should recognise this and cater for the needs of migrants and sending communities (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table has been substantially revised and updated, presenting key regional risks identified based on assessment of the relevant scientific, technical, and socioeconomic literature, as detailed in supporting chapter sections. Please see B-3.
1424	71002	SPM	13	26	13	37	Table SPM.4 - The legend for Era and Adaptation Potential is confusing and requires a great deal of work by the reader. A simpler alternative would be to create two columns (creating new symbols as needed) - the first related to time frame, with the options being near term and longer term (moving away from the "era" terminology), and the other adaptation potential, with the choices being substantial, minimal or not assessed. The caption can note that longer term risks can generally be reduced through globally effective mitigation in the near term and longer term. (CANADA)	This table has been substantially revised and updated, and this feature has been replaced by a clearer representation of risks and the potential for adaptation in three timeframes: the present, near-term (here, assessed over 2030-2040), and longer-term (here, assessed over 2080-2100). The caption notes the potential role of mitigation in reducing risks in the longer-term. Please see B-3.
1425	79249	SPM	13	26	13	37	Table SPM. 4 seems to underplay the well documented marine consequences (the text is almost exclusively concerned with coastal sea level issues) (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table has been substantially revised and updated, and includes a section on key risks for marine systems. Please see B 3.
1426	80339	SPM	13	26	13	37	Table SPM.4: Lacking references to WGI AR5 despite the fact that many physical climate variables and assessment conclusions are included. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been substantially revised and updated, and the revised table includes references to WGI AR5 where appropriate. Please see B-3.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1427	62462	SPM	13	26	13	46	Figure and Table are to be examined. (INDIA)	Careful consideration has been given to the figures and tables included in the SPM, removing some included in the previous draft and improving the clarity of those retained.
1428	70265	SPM	13	29	13	20	The expressions "era of climate responsibility" and "era of climate options" are unclear and should be explained better. (SWEDEN)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1429	65666	SPM	13	30	13	31	Put "era of climate responsibility" and "era of climate options" in italics as first mentioned. (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	The second paragraph of section A-3 and Figure SPM.4 introduce the time periods referred to by these eras including the rationale behind the distinction made.
1430	68431	SPM	13	30	13	32	The difference between pro-active adaptation and adaptation-as-you-go needs more clarification. It is in this table SPM4 that's presented for the first time. (NETHERLANDS)	The incorporation of the potential for adaptation in this table has been substantially revised and clarified. Please see B-3.
1431	65667	SPM	13	35	13	35	Change to "if globally effective" (delete last mitigation). (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been revised for clarity. Please see B-3.
1432	68432	SPM	13	35	13	37	Transformations can be considered as a an adaptation-strategy; the way the sentence is read it looks as if transformation is different from adaptation. (NETHERLANDS)	The revised caption does not include this text. Please see B-3. Transformation and relationships with adaptation are discussed in section C-2.
1433	63340	SPM	13	39	0	0	Figure SPM5 is too complex, No explanation as to why there are gaps in the digrams, is there any significance to the colours? Hard to interpret: Consider for example Europe, Coastal systems, is the figure saying the present risk to coastal systems is the same as the risk under 4oc and high adaptation? This seems odd. (IRELAND)	This figure has been removed.
1434	70266	SPM	13	39	13	45	The figures are overly complicated. The white sectors should explained, as well as the grey areas. Some of the sector "names" are different in C compared to A & B. E.g. "Terrestrial ecosystems" vs. "Ecosystems and Biodiversity". Some sektors could be spelled out, e.g. from A, +4oC, Freshwater ecosystems. Is the content one of "no possibility to adapt"? The same in 2oC, maximum adaptation corresponds to today's risks? (SWEDEN)	This figure has been removed.
1435	79250	SPM	13	40	13	45	On figure SPM. 5 it is unclear why 'ocean systems' are always left blank. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure has been removed.
1436	71003	SPM	13	47	13	51	Suggest better explaining what is meant by the term "emergent risks" in this section. (CANADA)	This term is no longer used in the SPM.
1437	77541	SPM	13	47	14	12	It is not clear for which range of temperature increase these statements refer. Refer to the "Reasons for concern" Box SPM.6 (SWITZERLAND)	The revised listing of key risks now presents explicit linkages with the reasons for concern presented in Box SPM.4. Please see B-1.
1438	65315	SPM	13	47	14	29	How are key risks here distinguished from emergent risks? Some of the emergent risks could also be considered key risks (for example, the first four emergent risks listed)? (Lourdes Tibig, The Manila Observatory)	This section has been revised to present only key risks. Please see B-1.
1439	68154	SPM	13	47	14	44	SPM should be highly elaborate, clear and concise. Here is a reproduction of the ES of Chapter 19 (see the comment of the Chinese government on Chapter 19). It is suggested to simplify and elaborate the conclusions and ensure their consistency with the revised ES of Chapter 19. (CHINA)	This section has been shortened and simplified, now only presenting key risks, consistent with the final draft of Chapter 19. Please see B-1.
1440	63964	SPM	13	47	16	43	It is not quite clear to which climate conditions (mitigation choices) and times these key risks refer. (GERMANY)	The revised listing of key risks now presents explicit linkages with the reasons for concern presented in Box SPM.4 that are associated with magnitudes of temperature increase. Please see B-1.
1441	61794	SPM	13	49	0	51	The difference between key and emerging risks is not clear, both are related to interactions as main feature. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This section has been shortened and simplified, now only presenting key risks. Please see B-1.
1442	63965	SPM	13	49	13	49	Please change into: "Key risks are potential adverse impacts ..." It is not explained in the SPM that consequence is a synonym for impact, so please use the well defined/explained word impact instead. (GERMANY)	This text has been revised for clarity, and the definition of impacts in Box SPM.1 explains that impacts and consequences are used as synonyms. Please see B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1443	63966	SPM	13	50	13	51	In Chapter 19 key risks are defined by the precondition of high climate change and their physical impacts and high vulnerability of systems exposed, not "or". Also all different kind of climate change effects (not only hazards) can have effects, please change into: "Risks are considered "key" due to high climate change effects and high vulnerability of societies and systems exposed." (GERMANY)	This text has been revised for clarity, ensuring consistency with the definitions presented in the WGII glossary and in Chapter 19. Please see B-1.
1444	76195	SPM	13	53	13	56	Please consider adding references to Cpt. 7. (UNITED STATES OF AMERICA)	This bullet now references Chapter 7. Please see B-1.
1445	79844	SPM	13	53	14	12	A key risk lacking here is loss of biodiversity, ecosystem function and services. Please include a discription of this factor. (NORWAY)	Key risks regarding loss of terrestrial and marine ecosystems and implications for ecosystem services are now included in this list. Please see B-1.
1446	70611	SPM	13	54	0	0	Suggest "reduced food security" instead of "food insecurity" (NEW ZEALAND)	"Food insecurity" has been retained, given the structure of the sentence. Please see B-1.
1447	68433	SPM	13	54	13	54	Please consider to replace the sentence "Increasing food insecurity from local conditions ...", the expression, "local conditions" with "local (natural and man-made) conditions" to better reflect the bracketed examples and increase clarity. (NETHERLANDS)	This text has been revised for clarity. Please see B-1.
1448	76969	SPM	13	54	13	56	Details by region or subcontinental area (CHILE)	Regional details relevant to this key risk are presented in section B-3 and in the underlying chapters of the report, but space considerations do not allow an extended discussion here.
1449	79251	SPM	13	54	13	56	Comment: food prices? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The role of food prices in this context is discussed in subsections of section B-2 on rural areas and livelihoods and poverty.
1450	63341	SPM	14	1	14	1	This sentence could be cleared. (IRELAND)	This text has been removed.
1451	65668	SPM	14	1	14	1	Suggest change to "alteration of ability of rural inhabitants to cope and adapt". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This text has been removed.
1452	63967	SPM	14	1	14	2	Please take the formulation from TS „The risks of dispossession of land—including the alteration of rural inhabitants’ coping and adaptation processes—result from shifts in energy policies and global markets.“ Source TS P 49 L 35-36. (GERMANY)	This text has been removed.
1453	63968	SPM	14	1	14	2	The relation of the first bullet to climate change needs to be brought out more clearly. (GERMANY)	This text has been removed.
1454	64339	SPM	14	1	14	2	If this bullet is about biofuels, then state that clearly. If it applies to other issues, then provide an indicative list (e.g. ....). (Don Lemmen, Canada National Study)	This text has been removed.
1455	71004	SPM	14	1	14	2	This risk described in the underlying chapters (13.3.1.4 and 19.6.2) is associated with bioenergy production, mainly in developing countries. Suggest replacing "energy policies" by "bioenergy production in developing countries". (CANADA)	This text has been removed.
1456	76196	SPM	14	1	14	2	Please revisit this bullet as the connection to climate is not as clear as in subsequent ones. (UNITED STATES OF AMERICA)	This text has been removed.
1457	71005	SPM	14	3	14	5	Suggest removing reference to "economies-in-transition countries" as this is not supported by the underlying chapters. Section 19.6.2 does refer to "... countries in transition due to changes in climate conditions as well as socio-economic structures .... (unreferenced). However this is not the same as a formally defined group of countries (EITs) under the UNFCCC. (CANADA)	This text has been removed.
1458	79845	SPM	14	3	14	5	Please consider substituting the word "engaged in" with e.g. "dependent on". Rationale: Many people and/or companies may be engaged in rain-fed agriculture, but may not loose their livelihood because of changes in climatic conditions. Many multi-nationale (NORWAY)	This text has been revised for clarity. Please see B-1.
1459	63342	SPM	14	3	24	4	The risk to livelihood in low lying coastal areas and rain fed agriculture is not confined to developing countries and economies in transition. However, these communities may have less adaptive capacity. (IRELAND)	For clarity, the revised list of key risks has separate bullets regarding low-lying coastal zones and agriculture, which are not confined to developing countries and economies in transition. Please see B-1.
1460	63343	SPM	14	4	0	0	Prefer the term "rain dependant" agriculture, as this would include irrigation systems etc. (excluding fossil water mining/pumping) (IRELAND)	This text has been revised for clarity, and this specific term has been removed. Please see B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1461	79252	SPM	14	4	14	4	"in developing countries and economies.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	For clarity, the revised list of key risks has separate bullets regarding low-lying coastal zones and agriculture, which are not confined to developing countries and economies in transition. Please see B-1.
1462	60519	SPM	14	6	0	0	In the examples you could mention "land slides" which I didn't see mentioned yet (Hélène CONNOR LAJAMBE, HELIO International)	This topic is not directly relevant to the referenced text.
1463	63344	SPM	14	6	0	0	Heat stress will increase even if there is power. Heat stress will also affect rural areas, maybe even more than urban areas if there are issues of access to recoures. Also animal and crops are subject to heat stress. (IRELAND)	This text has been revised to more broadly address heat stress, highlighting but not limiting to urban populations. Please see B-1.
1464	65313	SPM	14	6	0	7	Why specifically for urban areas only, and none for rural areas, especially in developing countries? (Lourdes Tibig, The Manila Observatory)	This text has been revised to more broadly address heat stress, highlighting but not limiting to urban populations. Please see B-1.
1465	76197	SPM	14	6	14	8	This is confusing. Morbidity/mortality coupled with infrastructure failure. Do the authors mean heat stress risk to elderly people in homes without air conditioning or do they mean roads collapsing and people trapped in cars? It is difficult to know what this sentence actually means. (UNITED STATES OF AMERICA)	This text has been revised for clarity to separately present key risks around heat stress and risks due to infrastructure failure. Please see B-1.
1466	65314	SPM	14	9	0	10	Statement needs to include more specific details inasmuch as this refers to vulnerability and not just due to aging population. In the developing countries in particular, aging population is a very small group rendered highly vulnerable by increase in disease burden from the interaction of changes in climatic conditions, like changes in rainfall, even as it is recognised that there are confounding factors such as absence/lack of health infrastructures and stressors brought about by degrading water quality. (Lourdes Tibig, The Manila Observatory)	This text has been removed.
1467	79253	SPM	14	9	14	9	Comment: disease burden of humans or animal/plant? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1468	59787	SPM	14	11	14	12	This dot point is unclear and is inconsistent with the style of the preceding points which provide more specific examples of risks. (AUSTRALIA)	This text has been removed. A separate paragraph in section B-1 addresses risks of large magnitude temperature increase.
1469	70267	SPM	14	11	14	12	The reference to "human physiological limits" refers here to >4oC, but in the Box SPM.5 to 7oC (page 15, line 29). Discrepancy? (SWEDEN)	This text has been removed. A separate paragraph in section B-1 addresses risks of large magnitude temperature increase. Human physiological responses are addressed in the human health subsection of B-2.
1470	70268	SPM	14	12	14	12	Is the implication here that risks for non-linear Earth system responses only exist beyond +4oC, or that only then such responses become "key" ones? (SWEDEN)	This text has been removed. A separate paragraph in section B-1 addresses risks of large magnitude temperature increase and nonlinear responses.
1471	79254	SPM	14	12	14	12	"in some locations and the increased risk of triggering nonlinear.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed. A separate paragraph in section B-1 addresses risks of large magnitude temperature increase and nonlinear responses.
1472	68434	SPM	14	13	14	13	Another key risk "Key risk due to increasing temperature on loss of biodiversity and ecosystem services affecting coastal livelihood for resource dependent countries which are frequently exposed to coastal hazards" may be added as per Chapter 19 (NETHERLANDS)	Key risks regarding loss of terrestrial and marine ecosystems and implications for ecosystem services are now included in this list. Please see B-1.
1473	63969	SPM	14	14	14	16	Please be aware of your wording and use "climate change signals and physical impacts" here or only "climate change" instead of only impacts, because impacts in general are also a function of vulnerability and exposure. See also our comments on the definition of these terms on page 2. (GERMANY)	This text has been removed.
1474	63971	SPM	14	14	14	16	The statement of a risk from interaction between mitigation and adaptation is not supported by the list in the following paragraphs, please delete or provide more information. (GERMANY)	This text has been removed. Interactions between adaptation and mitigation are discussed in section C-2.
1475	71006	SPM	14	14	14	16	This bolded header is currently not a useful finding. It may be preferable to define what an emergent risk is at the start of this section (where key risks are defined) and then revise these lines to say (consistent with Ch. 19 ExSum lines 2-34): "emergent risks arising from complex system interactions identified with high confidence include the following". (CANADA)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1476	63970	SPM	14	14	14	29	Please add the paragraph of TS, P7 L 54-56, including the changes we suggest on this para: "If mitigation measures are not coordinated and/or coherent with other objectives of sustainable development, disadvantaged groups without access to land and labor, including female-headed households can disproportionately be harmed...". Please add at the end of line 56: "Therefore, if their needs are not properly considered in the planning and implementation of mitigation measures, there [also] might be an actual tradeoff between the goals of efficient generation of carbon emissions certificates and the broader generation of the sustainable development dividend." (taken from Ch 20, P10 lines 22-23) (GERMANY)	This text has been removed. Interactions between adaptation and mitigation are discussed in section C-2.
1477	70354	SPM	14	14	14	29	Why do interactions between adaptation and mitigation actions provide new risks. In general they provide new possibilities (e.g. CHP in cities) (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed. Interactions between adaptation and mitigation are discussed in section C-2.
1478	65012	SPM	14	15	14	29	"Interactions between adaptation and mitigation actions": I'm not sure wether here is the best place to mention this, but some alternative mitigation actions such as "geoengineering" need to be taken into account somehow, as they would result in important impacts and new adaptation measures. (Maria Silvia Muylaert de Araujo, Federal University of Rio de Janeiro)	This text has been removed. Interactions between adaptation and mitigation are discussed in section C-2.
1479	68435	SPM	14	17	14	19	This is the first and last time that 'critical infrastructure' is mentioned in the SPM – that seems an underestimation of its importance in climate adaptation. (NETHERLANDS)	Infrastructure relevant to adaptation is also presented in Table SPM.2.
1480	79255	SPM	14	17	14	19	It would be clearer if you just said populations living in costal zones. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1481	59788	SPM	14	20	14	22	The 'provisioning' ecosystem services (e.g. provision of food, fibre, water) and cultural services (e.g. heritage values) are missing from the list. (AUSTRALIA)	This text has been removed.
1482	63972	SPM	14	21	0	0	The list of loss of ecosystem services does not seem logical For example, why is "protection from extreme events" mentioned? (GERMANY)	This text has been removed.
1483	63973	SPM	14	23	14	25	Please provide examples for "some water-stressed regions" (see chapter 19.3.2.2 page 16 to page 17). (GERMANY)	This text has been removed.
1484	71007	SPM	14	26	0	0	It may not be accurate to make a blanket statement such as "climate change adversely affects human health". While there are many adverse health affects, there are some positive affects such as a reduction in deaths related to extreme cold. (CANADA)	This text has been removed.
1485	65344	SPM	14	26	14	29	Since mental health is likely to be greatly affected by loss of family members as well as displacement, loss of family member should be noted. (REPUBLIC OF KOREA)	This text has been removed.
1486	58947	SPM	14	28	14	28	add after displacement "and extreme weather events." (Kevin Ronan, CQUniversity Australia)	This text has been removed.
1487	70353	SPM	14	29	14	29	What is mend by "new interactions". These are not given in Fig. SPM.6 (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed.
1488	79256	SPM	14	29	14	29	"new interactions" is a bit vague. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1489	63974	SPM	14	29	14	32	The statement is too unspecific and therefore not policy relevant. Please improve or delete. Please see also our comment on Figure SPM.6. (GERMANY)	This text and figure have been removed.
1490	68436	SPM	14	30	14	30	In the executive summary of chapter 19 (page 3) there is a list of interactions that increase vulnerabilities and risk. There are 6 bullet points; all of these are present in the TS and SPM as well, except for the last one: "adaptation designed for one sector may interfere with the functioning of another sector, creating new risks". This bullet point should also be included in TS and SPM, as it is a very important interaction to consider. Nowadays the efforts of scientists and policymakers are put into finding and implementing solutions to face the effects of climate changes. Unfortunately, too often action is taken based on limited or unilateral information, without considering possible effects on other sectors or fields. Therefore, it is necessary to stress the importance of evaluating all possible consequences of adaptation measures before putting them into practice. (NETHERLANDS)	These interactions are highlighted in section C-2.
1491	80340	SPM	14	31	0	0	Figure SPM.6: A clear rationale for the 'salient examples' given here should be provided, otherwise this figure comes across as a random selection of potential risks elevated to the highest level of the SPM. It is not even clear whether these examples are based on what has already been observed, or what is projected for a changing climate in the future. For the entry of 'sub-suharan africa' there is no link to climate made. (Gian-Kasper Plattner, IPCC WGI TSU)	This figure has been removed.
1492	80341	SPM	14	31	14	32	Figure SPM.6: "multi-impacts hotspots" -- Are those all climate change related hotspots or just general impact hotspots. What are the timeframe for these risk, what are the scenarios underlying the risks. (Gian-Kasper Plattner, IPCC WGI TSU)	This figure has been removed.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1493	71008	SPM	14	32	0	0	Figure SPM.6 - please draw line for Canadian North hotspot to the Canadian North (it presently points to prime agricultural land in central Alberta). Consider combining the "Canadian North" and "Arctic" boxes into a single box. (CANADA)	This figure has been removed.
1494	79846	SPM	14	34	14	44	This key finding seem not to be very informative, but rather general. The rest of the paragraph does not seem to give much added value, as most of the bullet points seem to be integrated in the sections already covered in this SPM. Please consider to dele (NORWAY)	This text has been removed.
1495	63975	SPM	14	38	14	39	Please add a reference to Chapter 12, Table 12-3 (P 52-53), which contains empirical evidence on observed or projected mobility outcomes (migration, immobility, or displacement) and gives examples for "migration flows at particular times and places" (SPM P 14 L 3). Additional rationale from Chapter 12, P 13 L 20-23 (including reference) "Table 12-3 therefore demonstrates that the key impacts of climate change include increased displacement; reduced mobility and trapped populations; and migrant populations moving towards destinations likely to be more hazardous due to the impacts of climate change (Black et al., 2011a)." (GERMANY)	This text has been removed.
1496	70355	SPM	14	38	14	39	The statement on migration flows needs to be verified. Yes, it is included in Chapter 19 (pg 23   8-10). But can this conclusion be made as (i) uncertainties are high; (ii) "more or less no literature is available to assess the impacts (see statements e.g. pg 23   12-13 on this). As such, this statement might need to be changes, also in the SPM . (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed.
1497	71009	SPM	14	38	14	39	This statement would not be particularly useful to decision makers. Consider revising. (CANADA)	This text has been removed.
1498	79257	SPM	14	38	14	41	It is a bit surprising that these 2 bullets are a key focus. We thought evidence for cross-boarder migration from climate change was limited. Also a little surprising thae influence of climate variability on security is high. We would like to see this backed up with links to evidence in the underlying report and given a confidence rating. * (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1499	68437	SPM	14	40	14	41	Please consider rephrasing of the sentence (NETHERLANDS)	This text has been removed.
1500	61795	SPM	14	46	14	49	The first sentence is an open door. The second part is not specific enough. Which stringent emissions are menat? Can these be related to RCP2.6 to 8? Can these be related to the SRES scenario to obtain a clearer idea of what we are talking about? Which economic impacts were estimated (market or also non-market, catastrophic risks as well)? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The first sentence has been revised and included in a broader paragraph about the potential for mitigation to reduce risks. The second sentence has been removed. Please see B-1.
1501	70269	SPM	14	46	14	49	Should state here, as for mitigation scenarios, how much of impacts could be countered with adaptation. (SWEDEN)	The revised text summarizes findings related to this point, to the extent possible based on available evidence. See page 7, lines 13-18, and the further examples across regions in B-3. Further details are provided in the underlying chapters.
1502	70612	SPM	14	46	14	49	This is a powerful and important statement (NEW ZEALAND)	Thank you. Please note that this paragraph has been revised to more broadly address the potential for mitigation to reduce risks. Please see B-1.
1503	76198	SPM	14	46	14	49	"residual damage" seems to imply that some or even most "plausible" scenarios can take care of most of the problem. That implication is misleading. Suggest changing this to underscore that it will take an enormous effort to cope, adapt and mitigate sufficiently to avoid most of the expected damage. How much damage is expected to be avoidable by an aggressive adaptation program? (UNITED STATES OF AMERICA)	The word plausible has been removed, as the meaning was ambiguous. "Residual damage" has been retained, as this term is intended to imply damages unavoidable via adaptation and mitigation. Please see B-1. Section A-3 and section B address the extent to which mitigation and adaptation can reduce risks in both the text findings and in the associated figures and tables.
1504	79258	SPM	14	46	14	49	This is a very strong statement to make. Suggest it should also be backed up by evidence from chapter 16 - limits to adaptation. Also, I'm not sure that this exact conclusion can be drawn from sections 19.7.1 and 19.7.2. I think they show that adaptation and mitigation have limits, but I don't think they fully cover the effects of maximum, or strong efforts under both. * (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The first sentence has been revised and included in a broader paragraph about the potential for mitigation to reduce risks. The second sentence has been removed. Please see B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1505	79847	SPM	14	46	14	49	Please be more concrete and provide quantification of the benefits of mitigation. If you also could specify what is meant by "stringent mitigation scenarios", this finding would be even more informative. It would maybe be better to focus the finding on th (NORWAY)	The first sentence has been revised and included in a broader paragraph about the potential for mitigation to reduce risks. Precise quantification of all the benefits of mitigation is not possible based on available evidence. Please see B-1. But section B and the associated underlying chapter provide such quantification where possible. Section A-3 also helps set context for understanding climate projections for continued high emission and ambitious mitigation.
1506	63345	SPM	14	47	14	17	The term "strigent" is normative and emotive. Suggest more neutral language or better still quantify the level of emissions reduction thought to be relevant in the context of 50% reduction in the aggregated economic impacts. In addition, the economic impacts have not been set out, so it is difficult to assess what 50% reduction means. (IRELAND)	This term and the text related to a 50% reduction have been removed.
1507	62464	SPM	14	47	14	47	The sentence "For..world" is not clear. I do not think that the temperatures after 2005 have increased 4°C above the 1986-2005 value. From this context, the next sentence also looks ambiguous. (INDIA)	This comment is misplaced. The referenced text in the human health subsection on future risks has been revised for clarity.
1508	70356	SPM	14	47	14	47	"stringent mitigation scenario's". Chapter 19, pg 48 shows that the about 50% risk reduction is only possible when mitigation effectors starts now, emission peak in 2016. When started later, the fraction will become much smaller. This time component needs to be added here. (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed.
1509	79259	SPM	14	47	14	49	The statement "Assessment of .... And region." is very strong. This should be accompanied by a confidential level. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed. Following the convention throughout the SPM explained in Box SPM.2, nonbold sentences are assigned the same level of confidence as bold sentences in the same paragraph, unless otherwise indicated.
1510	68438	SPM	14	48	14	48	The summary says that between 20-60% of the physical impacts can be potentially avoided. In the body of the chapter, though, different percentages for avoided impacts are mentioned (from 20-70%, or 30-80%, etc.) Chapter 19, page 47, lines 36-41. It is not clear why in the summary 60% is chosen as the maximum value for avoided impacts. When generalizing, one should take the extreme values, in this case 20% and 80%, to indicate potential avoidance of impacts. (NETHERLANDS)	This text has been removed.
1511	68439	SPM	14	51	14	53	The "reason for concern framework" should be introduced and explained in the beginning of the SPM. (NETHERLANDS)	This material is highlighted in box SPM.4, which is introduced in the context of the discussion of future risks in section B.
1512	78109	SPM	14	52	14	53	Reference is made to the "reasons for concern framework", but it has not been defined in the "Terms critical for understanding the Summary" on p.2; may be a reminder would be useful since it is further developed on p. 16 (Philippe MacClenahan, Synergies Environnement)	This material is highlighted in box SPM.4, which has been more explicitly linked with the discussion of key risks in section B-1.
1513	80342	SPM	14	55	0	0	Table SPM.5: Last row - '..1:20 year drought/flood becomes a 1:5 year flood/drought'. It is dangerous to give an example like this which can easily be extracted and quoted out of context. Better to give a concrete example with line of cite to the relevant chapter. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been removed.
1514	80343	SPM	14	55	0	0	Table SPM.5: The selection of examples used here seems very random, and ranges from very specific examples to very vague examples. On page 30, we have for Europe a very vague 'Extreme weather events', then for Asia a more specific 'Projection increase in frequency of various extreme events', and then for Northern America 'Increases in frequency and/or intensity of....'. A clearer rationale for the selection of, and wording of the various examples used in this table would be good. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been removed.
1515	80344	SPM	14	55	0	0	Table SPM.5: Examples from Chapter 19 - 'degree of precipitation changes uncertain' is not useful and misrepresents the WGI report which is cited here. If WGI is to be cited here, then a more useful statement on the projected changes in precipitation could be given. At the zonal (latitudinal) scale, the SOD of WGI contained high confidence ('very likely to likely') statements relating to projected changes in average precipitation. Please see and update according to the final draft of WGI. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1516	80345	SPM	14	55	0	0	Table SPM.5: 'Potential for sea level rise beyond 2100 exceeding 1m' is not useful or quantitative. At the global scale WGI chapter 13 contains quantitative statements regarding the expected sea level rise by 2300. Chapter 13 of WGI should not be cited in relation to specific projections for the Australasia region, as such an assessment is not given in Chapter 13. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been removed.
1517	79260	SPM	14	55	14	55	SPM 5: o Agriculture: perhaps more could be made of lack of political governance - alluded to in areas such as land tenure - and grand scale investment in physical infrastructure - eg to improve access to markets. Also to highlight the need for PPI eg investment in R&D o Urban areas - stress the vulnerability of migrant communities o Hunger and malnutrition - policies and action required to raise profile and make visible eg real time hunger mapping. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table has been removed.
1518	78110	SPM	15	0	15	0	The purpose of,providing box SPM 5 and Box SPM 6 at this stage of the summary is not clear: actually reading of section C.ii is confusing, there is no clear connection between paragraphs, it seems a succession of facts and ideas with missing connecting sentences to help grasp what the core message and key ideas are (Philippe MacClenahan, Synergies Environnement)	This section (now B-1) has been substantially revised and is presented with a clearer logical flow through the sections. The previous Box SPM.5 has been removed, and the box on anthropogenic interference with the climate system (now SPM.4) is more clearly linked with the discussion of key risks in the section text.
1519	70614	SPM	15	0	16	0	This box is very useful. (NEW ZEALAND)	Thank you.
1520	79261	SPM	15	0	16	0	BOX SPM6: We would like to see this placed against against the 'burning embers' diagram from AR4 so any changes in risk can be compared. The regional 'burning embers' diagrams in AR4 were also useful and we would like to see them here. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Space constraints in the SPM do not allow inclusion of this comparison, but such comparison is discussed in detail in the underlying sections of Chapter 19. Table SPM.1 provides illustration of regional key risks and potential for adaptation.
1521	71010	SPM	15	1	15	9	Table SPM.5 - the table would be more effective if it added a new column that identified the relevant "current global megatrends" that are additional to climate change. It seems to be an overstatement that "the examples illustrate ... new systemic risks that go far beyond existing adaptation and risk management capacities". While the statement is likely true, the table presents no information on existing adaptation and risk management capacities, so this is impossible to assess objectively. (CANADA)	This table has been removed.
1522	62465	SPM	15	6	15	6	Use of the term "Megatrends" is not clear, nor how the term is related to those in paranthesis. (INDIA)	This table has been removed.
1523	80346	SPM	15	6	15	6	What are "current global megatrends"? How are megatrends defined and how do they differ from just regular trends? Suggest to avoid this term unless it's defined somewhere. (Gian-Kasper Plattner, IPCC WGI TSU)	This table has been removed.
1524	63346	SPM	15	11	15	40	Too much techncial detail in SPM BOX 5. Distil the key message about the adverse impacts across all sectors in a 4oc world, which appear in the second part of the box. It seems clear that above 4oC adaptation will not be possible for many communities and ecosystems. This should be stated more clearly. (IRELAND)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1525	62466	SPM	15	13	15	13	There is a box on consequences of greater than 4.0 C. From the policy perspective there is a need for a box on consequences of >2.0 C. (INDIA)	This box has been removed due to space considerations. Table SPM.1 illustrates regional key risks and potential for adaptation contrasting end-of-century warming of 2°C and 4°C.
1526	59789	SPM	15	13	15	36	This is a great section, and will be particularly useful for policy makers. (AUSTRALIA)	This box has been removed due to space considerations, but section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change. A revised box is included in the Technical Summary.
1527	63976	SPM	15	13	15	36	Box SPM.5: Specific comments: The reason for including these statements among all those possible in this Box is not obvious (highest risks? highest confidence?), and why are they separated in two paras? Please add a short statement outlining the reasons for the issues mentioned and improve structure. In addition, each of the statements should be associated with a confidence statement and references to the underlying report, e.g. to P 15, L 35-36. (The reference list in L 38 is not helpful). It would be good to mention that the risk of irreversible changes (tipping points) increase with increasing temperature. (GERMANY)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1528	70613	SPM	15	13	15	36	This box is very useful. Some points in the second and third paragraphs could be made clearer by using bullet points. (NEW ZEALAND)	This box has been removed due to space considerations, but section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change. A revised box is included in the Technical Summary.
1529	85192	SPM	15	13	15	36	There is no evidence that such temperature rises could occur. You do not even consider the consequences of the continuance of the absence of temperature rise of the past 15 years, or of continuing Northern Hemisphere cold winters. (Vincent Gray, Climate Consultant)	Observed changes in the physical climate are assessed in the Working Group I contribution to the Fifth Assessment Report.
1530	67967	SPM	15	13	15	38	This box needs some discussion on "time scale". For example, it would take a few centuries to complete melting of Greenland ice-sheet. (JAPAN)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1531	76199	SPM	15	13	15	38	The references to supporting information for Box SPM 5 should include 6.2.2.1, 6.2.3.1, 6.2.4, 6.2.5.1, 6.3.2, and CC-CR. Currently, Chapter 6 is listed as a reference; however, the reference to Chapter 6 should be narrowed to those sections that focus, specifically, on temperature impacts. (UNITED STATES OF AMERICA)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1532	70941	SPM	15	13	15	40	I suggest adding some information about what changes in precipitation and sea-level rise these considerations are based on; not only temperature. (Fuglestedt Jan, CICERO)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1533	71011	SPM	15	13	15	40	This discussion of consequences of a >4deg temperature increase is useful, but it is not clear why other possible temperature increases were not also discussed. Presenting only this temperature change may seem unbalanced to readers. A sentence should be added to the beginning of this Box to explain the selection of >4deg as the focus of the Box. (CANADA)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1534	79849	SPM	15	15	15	15	Add "levels" after "preindustrial" to generate "... preindustrial levels..." (NORWAY)	This specific text has been removed, but this format has been used elsewhere.
1535	68440	SPM	15	15	15	19	Sometimes the preindustrial period is taken as a reference period, and sometimes the early industrial period – why this is, and what the implications are should be introduced and explained in the beginning of the SPM. (NETHERLANDS)	Unless otherwise indicated, preindustrial levels are used as the reference period. Early industrial is not used as a reference period.
1536	61796	SPM	15	15	15	36	Information on the consequences of temperature rises greater than 4degC is essential. This should not be included in a box but rather included throughout the SPM and related to the RCPs. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This box has been removed for space considerations with a summarizing paragraph in section B-1, and consequences of large temperature increases are discussed throughout section B (including relationships with the RCPs) where such evidence is available.
1537	71012	SPM	15	15	15	36	Box SPM.5 needs to be examined very closely by the writing team and considered in the context of Box SPM.6 and the Reasons for Concern figure. The statement "Sub-Saharan Africa is identified as a multi-impacts hotspot in a 4C world" is true, but does this not also apply to lesser warming? Similarly, sea level rise inundating small island states is also an issue at warming of <4C. Unless "high latitudes" is clearly defined, suggest removing reference on line 24 as high latitudes (>60N) warm greater than the global average. The entire discussion could be more usefully framed as food security rather than food production. Finally statements on non-linear system responses (lines 32 to 36) should be moved up as part of the first paragraph as they are important. (CANADA)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1538	67968	SPM	15	17	15	17	The year "1886" may be mistyped. It should be corrected to 1986, to be consistent with CMIP5 outcomes. (JAPAN)	This text has been removed.
1539	70357	SPM	15	17	15	19	Check given precentages (no reference given)When RCP6.0 ranges from 2-3.9oC, a +4oC condition is not likely (even not 5%). For RCP8.5 (with a range of 3.3-5.5oC), an exceedance of +4oC is indeed very likely, but indeed 95% (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1540	71013	SPM	15	17	15	19	This phrasing about global mean surface temperature changes being likely in the 5-95% range of CMIP5 climate models may be difficult to read and understand. It is a very technical way of phrasing this conclusion. Suggest trying to rephrase (here and elsewhere where this phrase is used) along the lines of the following: Changes in global mean temperature for the end of the century (2081-2100) relative to the early industrial period (1886-1905) that fall within the 5-95% range of the CMIP5 models are assessed as likely to occur. For RCP6.0 and RCP8.5 the likely temperature change is .... (complete). More generally, this result may be puzzling to readers as the IPCC definition of very likely is 90-100%. Since the 5-95% range covers 90% of the range, this would seem to warrant an assessment of very likely, not likely. Presumably, WGI addresses this point, but as it may cause confusion for readers, suggest a footnote be added to explain the terminology here. (CANADA)	This text has been removed.
1541	76200	SPM	15	17	15	19	Suggest adding a sentence of phrase emphasizing that global average in that range also means some areas with considerably higher means, and even in places where the mean falls in that range, periods of time when temperature increases are much higher than the mean. (UNITED STATES OF AMERICA)	This text has been removed.
1542	80347	SPM	15	17	15	19	Please check these GMST values carefully against the latest draft of the WGI SPM, where the values are lower than reported here. The expert assessment for global mean surface temperature changes as projected with climate models based on CMIP5 is provided in the WGI AR5. Repeating the assessment and providing different assessment results using a different reference period, should clearly be avoided. It's not clear to us why you would not simply refer to the WGI AR5 rather than repeating the assessment here. Providing quantitative results for the same quantities that differ from the numbers in WGI AR5, will cause a lot of questions and confusion. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1543	85148	SPM	15	18	15	19	Check figures consistency with WG I (Michel Petit, CGIET rue de Bercy)	This text has been removed.
1544	79850	SPM	15	21	14	21	Add "levels" after "preindustrial" to generate "... preindustrial levels..." (NORWAY)	This specific text has been removed, but this format has been used elsewhere.
1545	61797	SPM	15	21	15	23	This is a key statement of the SPM and should be more prominent. The comparison of climate change to population growth and land use is very tangible and exactly the kind of information that highlights the scale of the problem. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This box has been removed due to space considerations, but section B-2 addresses impacts on freshwater resources and on ecosystems.
1546	62701	SPM	15	21	15	23	Food security is complex, and is certainly different from the decrease in food production or in food productivity. There will be several possibilities to define food security. Akimoto, K., Wada, K., Sano, F., Hayashi, A., Homma, T., Oda, J., Nagashima, M., Tokushige, K., Tomoda, T., Consistent assessments of pathways toward sustainable development and climate stabilization, Natural Resources Forum 36(4), 231-244 (2012) defines food security as the amount of food import per GDP. Then, the study shows the possibilities that deeper emission reductions rather worsen the food security while the food productivity decreases due to climate change. It is a different conclusion from the description of IPCC draft. Such a different analysis should also be referred and described with good balance. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	Comment is not directly relevant to referenced text. Food security is discussed in detail in Chapter 7 and other chapters of the report, and relevant findings can be found in section B of the SPM.
1547	67969	SPM	15	21	15	23	Akimoto et.al, ( Akimoto, K., Wada, K., Sano, F., Hayashi, A., Homma, T., Oda, J., Nagashima, M., Tokushige, K., Tomoda, T., Consistent assessments of pathways toward sustainable development and climate stabilization, Natural Resources Forum 36(4), 231-244 (2012)) analyzed the mitigation effects on food security and food accessibility, and found that too much mitigation (ex. +1.9 degree C comparing to pre-industrialization) suppress the income and thus do food security. Also "Impacts of biofuel expansion on world food systems and the environment" by G.Fischer and S. Prieler (2010) shows that in the case of the additional production of first-generation biofuels(scenario TAR) causes higher prices and results in additional number of people at risk of hunger compared to the reference projection(see figure9 in 36p, figure12 in 42,table 15 in 40p). The IPCC should refer various kinds of results including the said one. (JAPAN)	Comment is not directly relevant to referenced text. Food security and interactions between food and biofuel production are discussed in detail in Chapter 7 and other chapters of the report, and relevant findings can be found in sections B and C of the SPM.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1548	77451	SPM	15	21	15	29	In the Box "Consequences of > 4°C Temperature Increase" the fact that small island states might inundate only comes at the very end, despite its immense significance and "high confidence". Further, the Box does not make any reference to what a 4°C warming might mean for the global economy. Also, some kind of reference to the issue of loss and damage, as it is mentioned on page 18, line 26 would be beneficial. (Sven Harmeling, Germanwatch)	This box has been removed due to space considerations, but section B-3 presents regional key risks for Small Islands in Table SPM.1. Section B-2 in the subsection on economic sectors and services provides a finding on what is known regarding global aggregate economic losses. Section B-1 includes a summarizing finding on the potential for mitigation and adaptation to reduce risks.
1549	79851	SPM	15	21	15	36	Also mention other biological systems that may be very adversely affected by a temperature increase of 4 degrees C or more, e.g. boreal forests, arctic systems (including permafrost), tropical rain forests. (NORWAY)	This box has been removed due to space considerations, but risks for these ecosystems are discussed in the subsection on terrestrial and freshwater ecosystems in section B-2.
1550	80129	SPM	15	21	15	36	I would think an explicit reference to the timing of the 4°C increase (i.e. by 2100) is warranted if all of the following rather strong statements are to be valid. It may make sense to differentiate between impacts which depend on the rate of change and those which don't. (Jochen Harnisch, KfW)	This box has been removed due to space considerations, but section A-3 and Figure SPM.4 address scenarios of temperature increase. Section B includes findings relevant to rate of change where evidence is available.
1551	79852	SPM	15	23	15	23	Please consider rewriting this sentence so that it reads "... coral reef mortality is projected with corresponding effects on associated biodiversity, ecosystem function and services and ultimately social systems and human well being." since coral reefs a (NORWAY)	This box has been removed due to space considerations, but this topic is discussed in the marine systems subsection of section B-2.
1552	70270	SPM	15	24	15	25	The "exceeds 3oC" and "below 4oC" is somewhat unprecise In many land regions, a >3oC temperature rise would correspond to a smaller than 3oC global mean warming. (SWEDEN)	This text has been removed.
1553	70358	SPM	15	24	15	25	Check given +3oC threshold. How is a local temperature change of +3oC possible in high latitudes for a global change of +4 oC. Land warms more than water, high latitudes generally warm more than low latitudes. I would expect in high latitudes a change of > 4oC (Jelle van Minnen, PBL Netherlands Environmental Assessment Agency)	This text has been removed.
1554	80348	SPM	15	26	15	27	Assessment statement about heat waves must be based on the WGI AR5 (or perhaps SREX). We suggest to clarify what this statement is based. If it is taken from the WGI report, then this reference needs to be added to the actual citation from WGI rather than in the line of cite to the WGII report in order to avoid confusion. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1555	79262	SPM	15	28	15	29	Sentence doesn't seem to fit the 4 degree C narrative of the rest of the paragraph. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1556	70271	SPM	15	29	15	29	7oC sounds as rather unrealistic global mean temperature rise. What would happen at a somewhat lower (>4oC) rise, for example? (SWEDEN)	This text has been removed.
1557	79263	SPM	15	31	15	36	Can something be said about the sea-level rise that would eventually result from loss of Greenland ice-sheet or WAIS? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This topic is addressed by the Working Group I contribution to the Fifth Assessment Report.
1558	68441	SPM	15	32	15	32	The SPM reports for Sub Saharan Africa on increase of the risk of disease, while in the body of the chapter 19 ) only malaria is mentioned, and only for some areas ( section 19.5.1, page 27, line 42) (NETHERLANDS)	This text has been removed.
1559	80349	SPM	15	32	15	36	What is the statement about the non-linear earth system responses based on? From the line of cite it's clear that part of this seems to refer to the WGI AR5 SPM, but then it is unclear whether the following 5 entries are all also referring to WGI AR5. Please clarify. (Gian-Kasper Plattner, IPCC WGI TSU)	This box has been removed due to space considerations. Section B-1 includes a summarizing paragraph about the risks of large magnitudes of climate change.
1560	80350	SPM	15	33	15	33	Eventual irreversible loss of Greenland Ice Sheet (high confidence)' is a much stronger and more definitive statement than assessed in WGI. WGI do not assign a confidence to the loss of the Greenland Ice Sheet, and explicitly state that "complete loss of the Greenland Ice Sheet is NOT INEVITABLE." Please ensure consistency with latest draft of the WGI SPM (and chapter 13). An argument could be made to remove this statement entirely given it is outside the scope of WGII to assess such physical changes and no line of cite is given to an underlying comprehensive chapter assessment on this topic in WGII. (Gian-Kasper Plattner, IPCC WGI TSU)	This box has been removed due to space considerations. Box SPM.4 includes a statement about sea-level rise from ice sheet loss (complete loss not implied), with support provided by the assessment in Chapter 19, which refers to the assessment in the Working Group I contribution.
1561	61940	SPM	15	33	15	34	In addition to Greenland Ice Sheet, perhaps some reference could also be made to the staggering reductions in Arctic/polar ice more generally, highlighting the % loss in volume since the 1970s, for example? (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This topic is assessed in the Working Group I contribution to the Fifth Assessment Report.
1562	61798	SPM	15	34	15	34	This statement on carbon loss is not entirely true. Please check with WGI Chapter 6 for consistency. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1563	63977	SPM	15	35	15	36	What is the confidence in this issue? What are further consequences of melting glaciers and ice-sheets, does the sea level rise pose a threat? (GERMANY)	This text has been removed.
1564	70679	SPM	15	35	15	36	There is reference to na increased chance of triggering the collapse of the West Antarctic Ice Sheet. This sentence is vague and very risky due to the serious implications it includes. I would suggest either rephrasing inserting information on the degree of confidence/uncertainty, but also to mention what do the present research indicates in what concerns to possible time-spans of the collapse. (Goncalo Vieira, University of Lisbon)	This text has been removed.
1565	80351	SPM	15	35	15	36	This statement concerning the West Antarctic Ice Sheet should be removed. Without quantification of this 'increased chance', supported with a comprehensive chapter assessment on this topic, this statement reads as being a bit alarming and without any basis. (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1566	68442	SPM	15	38	15	38	The Box SPM.5 is about consequences of >4°C temperature increase, but refers (among others) to paragraph 19.4.3, that instead reports about impacts of mitigation measures and not impacts of temperature increase. (NETHERLANDS)	This box has been removed due to space considerations.
1567	79037	SPM	15	42	16	43	Box SPM.6 contains information that should be presented much earlier in the SPM. I suggest to move the box to page 2 - 4 somewhere. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This box has been moved to the first section of the discussion of future risks and opportunities for adaptation. Please see B-1.
1568	64340	SPM	15	44	0	0	Title of Box SPM.6 should include explicit reference to Article 2 of the UNFCCC (Don Lemmen, Canada National Study)	Article 2 of the UNFCCC is referenced in the first sentence of this box. Please see B-1.
1569	65894	SPM	15	44	0	0	Start the Box SPM.6 with the text of the UNFCCC article 2 (SPAIN)	Space constraints in the SPM do not allow reproduction of the text of Article 2.
1570	79264	SPM	15	44	15	44	Would be helpful to have a short paragraph here, referring to the UNFCCC ultimate objective, as it would set the context. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Space constraints in the SPM do not allow reproduction of the text of Article 2.
1571	59790	SPM	15	44	15	56	Box SPM.6 - This box seems like it appears a little late in the SPM. Suggest putting this in the beginning section as it should precede discussions on (for example) Consequence of a > 4 degree temperature rise. (AUSTRALIA)	This box (now Box SPM.4) has been moved to the first section of the discussion of future risks and opportunities for adaptation.
1572	79848	SPM	15	44	16	9	This box should in our view include more information about the different factors that may be relevant to the judgement of whether the change is dangerous. (NORWAY)	Due to space considerations, this topic cannot be discussed in detail in this box, but the Technical Summary version does provide further information in this respect, and Chapter 19 also provides additional discussion of this topic.
1573	59791	SPM	15	45	15	53	Consider revising placement of this section here as it interrupts the flow of the chapter (AUSTRALIA)	This material has been shortened in the revised SPM, and the box placement has been moved to improve the flow of information.
1574	62676	SPM	15	46	15	46	Could "the climate system" keep consistency with the chapters across AR5 reports? In Chapter 18, it seems only refer to the atmospheric systems according to its definition? If so, it is diferent from the previous IPCC reports, e.g. AR4 and WG1 report? It might be easily confusing, even if the definition is merely used in ch18. (RONGSHUO CAI, Third Institute of Oceanography)	This term is defined in the AR5 glossary, and the definition has been coordinated across Working Groups.
1575	79265	SPM	15	46	15	47	These are key statements which should be at the front of the document. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	These statements appear in the introduction to the SPM and the first section, A-1.
1576	79266	SPM	15	46	15	53	clearly stated that there is no IPCC definition of "dangerous climate change" but the subsequent examples under "updating of the reasons for concern (Box SPM6.Figure 1) leads to the following assessment" (Pg16 lines 17-34) twice refer to 2°C warming. this may be an artefact of literature examing different potentail temp rises, but it does imply variation in what constitutes "dangerous". It may be beneficial to introduce a line stating that what constitutes dangerous will vary depending upon a combination of factors and no single temperature target is truely representative for all locations/instances. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This wording has been clarified as to the information the reasons for concern provide, and the role of value judgments in determining what constitutes "dangerous." Please see B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1577	71014	SPM	15	46	16	41	This discussion, as well as the caption for Box SPM.6 Figure 1, needs to clearly state whether the various versions of the Reasons for Concern diagram (TAR, PNAS) can be compared and demonstrate an evolving understanding of the level of risk. If they are directly comparable, then list the criteria that were used to guide the expert judgement. Specific examples where the level of risk is better understood and assessed to be greater for a given change in temperature are needed. While this is a potentially powerful diagram, unless it is possible to illustrate the objectivity that went into the analysis it will have little impact on decision-makers. For example, does the purple on Risks to Threatened and Unique Ecosystems really mean that we now understand the risks of a 3C warming on such systems to be greater than we assessed a 6C warming in the TAR (which was red)? Being clear about the objectivity and comparability of these diagrams is critical to credibility. (CANADA)	This text has been revised to clearly describe the current figure, but explicit comparison with the past versions of the diagram has not been included due to space considerations. Please see B-1. Such comparison with the previous version of the figure is presented in the supporting sections of Chapter 19.
1578	63978	SPM	15	47	15	53	Box SPM.6 states "Determining whether anthropogenic interference is dangerous involves judgements about risks". The WGII report provides plenty of such judgements about risk, for example in Table SPM4, or Box SPM6. Figure 1. Box SPM.6 also states that "The IPCC cannot, however, make a determination of the level of anthropogenic interference that is dangerous". This is contradictory and the text should be revised. It should be clarified that the risk assessment provided by IPCC must not be confused with the judgement about the danger associated with these risks. The two statements should be revised as follows: "Determining whether anthropogenic interference is dangerous involves risk assessment". "The IPCC provides information on the level of anthropogenic interference with the climate system and about the associated risks. The IPCC however, cannot make a determination of the level of risk that is dangerous". See also our comment on Box TS.7. (GERMANY)	This text has been revised for clarity to explain the role of scientific assessment and value judgements in determining what constitutes "dangerous." Please see B-1.
1579	79267	SPM	15	50	15	50	"of observed and projected risks and the..." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The text has been revised to capture this point. Please see B-1.
1580	80352	SPM	15	50	15	50	"scientific and technical understanding of risk" -- Unclear what the "technical understanding" is referring to. Suggest to explain or use a different term. (Gian-Kasper Plattner, IPCC WGI TSU)	This term has been removed.
1581	61799	SPM	15	52	15	53	Can the IPCC summarise what the literature says about dangerous interference? This is a key issue. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	As explained in this box, the WGII SPM presents information about risks that can inform value judgments about what is "dangerous," including the summary of information presented in the reasons for concern framework.
1582	70942	SPM	15	52	15	53	This is an important point to make. I suggest you add more why this cannot be determined by IPCC. (Fuglested Jan, CICERO)	Space considerations do not allow expanded discussion of this point in the SPM, but this can be found in the Technical Summary.
1583	77542	SPM	15	52	15	53	Replace the sentence "The IPCC cannot ..." with "Therefore the work of the IPCC can contribute to the discussion on the level of anthropogenic interference that is dangerous" (SWITZERLAND)	This text has been revised for clarity. Please see B-1.
1584	79268	SPM	15	52	15	53	"decision-making. The IPCC cannot, however, make a determination of the level of anthropogenic interference that is considered 'dangerous'." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-1.
1585	61803	SPM	16	1	18	0	The importance of mainstreaming is not sufficiently highlighted - adaptation measures for adaptation alone are exception rather than rule. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This topic is discussed in section C-1.
1586	63979	SPM	16	2	16	2	Article 2 of the UNFCCC could be provided in a footnote to ease reading for policy makers not familiar with UNFCCC. (GERMANY)	Space considerations do not allow reproduction of the text of Article 2, but the text has been revised for clarity.
1587	79269	SPM	16	2	16	3	Spell out Article 2 of the UNFCCC? SREX also needs explaining. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	These terms are spelled out at their first usage in the SPM.
1588	60261	SPM	16	2	16	9	The terms 'key risk' and 'emergent risk' should be defined in the section on page 2 (Box SPM.2). (AUSTRALIA)	Key risks are introduced in section B-1 where specific key risks are presented. The term emergent risk is no longer used in the SPM.
1589	70272	SPM	16	3	16	3	Change "discussions" to "assessment". (SWEDEN)	This text has been removed.
1590	63347	SPM	16	11	0	0	The bold text is not assisted by the following supplementary text. The bold text is sufficient to make the point, unless there is an additional message which is not expressed clearly. (IRELAND)	This text has been removed.
1591	70273	SPM	16	11	16	11	On page 3, line 16, "most ocean regions" is mentioned, but here "[all] the ocean". Please clarify. (SWEDEN)	This text has been removed.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1592	79270	SPM	16	11	16	11	"have now been observed and documented.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.
1593	61941	SPM	16	11	16	12	General comment. Some mention of current discussion over the apparent deceleration/absence of warming since 1998 might be a way to address current reports that global warming has stopped. Prof John Houghton's recent clarifications on this point have been helpful in terms of pointing out how a selective use of dates can lead to some researchers and by default some sections of the public to conclude that there is no longer any cause for concern. Recent research on ocean uptake of heat and how this plays into the overall balance of temperature may help. (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This topic is assessed in the Working Group I contribution to the Fifth Assessment Report.
1594	70615	SPM	16	16	16	32	These summary point are really good and much clearer than some of the material at the front of the document. (NEW ZEALAND)	Revisions have focused on making all text clear and policy-relevant. Please see B-1.
1595	79853	SPM	16	16	16	34	We consider those to be very significant findings. Please elaborate a little further the bulletpoint that refers to AR4, and not only refer to AR4. The policymakers do not necessarily know all the content of AR4, hence it is important that these points ca (NORWAY)	This text has been revised for clarity, focusing on a clear description of the current reasons for concern. Please see B-1. Details of the comparison with the previous version of the reasons for concern can be found in the supporting sections of Chapter 19.
1596	63348	SPM	16	17	0	0	Replace "Unique" with "Certain" and delete "tend to" (IRELAND)	This text has been revised for clarity. "Tend to" has been deleted. "Unique" is part of the name of this reason for concern and thus has been retained. Please see B-1.
1597	68443	SPM	16	17	16	17	"Unique human and natural systems tend to have very limited adaptive capacity" is here related to "unique" and the threshold of 2 degrees. However "adaptive capacity", as presented in chapter 8, (see chapter 8, page 72, line 53, also TS page 58, line 50, page 14, line 23, chart in page 106 and figures page 112 and 113, SPM charts page 30 and page 43) is also basis for major goal and sole necessary key concept for paradigmatic shifts in urban traditions. Also for "differential adaptive capacity for individuals, households, and communities" in TS, page 7, lines 1 and 2). In SPM, page 5, line 52 "Adaptive capacity is generally high in many Australasian human systems" in page 6, line 8 "In the Arctic, indigenous people have a high adaptive capacity". Also UHI experience variations from city centres to the peripheries of higher ranges. Suggest contextual improvement so that key concept does not weaken. The clarification is probably the "intrinsic capacity" which has thresholds and the "acquirable capacity", namely by learning, which does not have (known) thresholds. TS, Page 60, line 21 "Such limits are context-specific and subject to uncertainty". (not referred in SPM). TS, Page 28, lines 14 to 15 "Any assessment of limits to adaptation in human systems is preliminary because of uncertainty about the existence and level of adaptation limits, and whether these limits are hard or soft." (NETHERLANDS)	This text has been removed.
1598	61800	SPM	16	17	16	19	Without setting it in context, this text is unclear. What does "unique" mean in relation to human and natural systems? What does "systems" mean in line 18? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, with addition of illustrative examples. Please see B-1.
1599	65607	SPM	16	17	16	19	We should say here that it is now very likely that temps will rise more than 2 degs. (David Flint, Cass Business School)	The figure associated with this box (Box SPM.4 Figure 1) illustrates temperature increase over the 21st century under RCP 2.6 and 8.5, compared with the reasons for concern.
1600	76201	SPM	16	17	16	19	This bullet is not correct and must be revised. Whether something exceeds adaptative capacity depends on the *rate* of change, not an absolute change over some undefined time period. The text needs to reflect the underlying text more accurately. This also seems to contradict earlier assertions that we cannot determine what "dangerous anthropogenic interference" is. (UNITED STATES OF AMERICA)	This text has been revised for clarity, with traceability to the underlying assessment of Chapter 19. The revised text also explains that this information is relevant to evaluating what is "dangerous," but is not making such assignments. Please see B-1.
1601	79271	SPM	16	18	16	18	"cultures" better than "species" in this context. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and "cultures" has been included in this revision. Please see B-1.
1602	63349	SPM	16	20	0	0	Edit "The assessment of overall risk...". It is not true to say that the risk has not change, as climate change is observed to be progressing and radiative forcing has not abated. (IRELAND)	This text has been removed.
1603	79272	SPM	16	20	16	20	"Knowledge regarding the overall risk from extree events due to climate change has not improved significantly.."? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1604	60262	SPM	16	20	16	22	Using AR4 as a baseline is not helpful. Please describe what the conclusions in AR4 were. (AUSTRALIA)	This text has been revised for clarity, with a focus on clear description of the current assessment of the reasons for concern. Please see B-1. The comparison with previous versions is discussed in the supporting sections of Chapter 19.
1605	61801	SPM	16	20	16	24	This bullet point is too vague. For which types of extreme events do we have higher confidence in attribution? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text has been revised for clarity, with addition of illustrative examples. Please see B-1.
1606	80353	SPM	16	20	16	24	"reasons for concern" -- This statement about attributing (changes in?) extreme events to human activity needs to be backed up by a reference to the WGI AR5 Detection & Attribution Chapter 10, where the assessment of attribution of changes in physical climate variables is provided as part of AR5. Suggest to add this reference. (Gian-Kasper Plattner, IPCC WGI TSU)	This specific text has been removed.
1607	64341	SPM	16	22	16	23	Additional clarity is needed around the phrase "a new appreciation for the importance of exposure and vulnerability". Is this trying to draw attention to the importance of non-climate factors in determining climate risk? (Don Lemmen, Canada National Study)	This specific text has been removed, but the subsection of section A-1 on vulnerability and exposure addresses this point.
1608	79273	SPM	16	25	16	25	"Risk is generally greatest in low-latitude, less developed countries, but.." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity. Please see B-1.
1609	62467	SPM	16	25	16	27	Greenland ice deglaciation needs to be verified. (INDIA)	This comment seems to refer to page 16 lines 33-34. The text has been revised for clarity and verified as requested.
1610	69901	SPM	16	25	16	27	Does this refer to global or local warming? (John Caesar, Met Office Hadley Centre)	These levels refer to global mean warming, which is specified in the associated figure.
1611	80354	SPM	16	27	16	27	Suggest to delete "as noted in AR4" as it does not add anything to this statement. Or is this a citation from AR4 rather than an AR5 assessment? (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been removed.
1612	62468	SPM	16	28	16	28	Once again, "the use of technical words such as "non-monetized" may be clear to economists, and policy scholars, but not for a wider-audience. (INDIA)	This term has been removed.
1613	65608	SPM	16	28	16	28	What is the best estimate of globally aggregated risk? (Even if its known to be too low.) (David Flint, Cass Business School)	This topic is addressed in the subsection on economic sectors in section B-2.
1614	65606	SPM	16	33	0	34	So far as I can see the assessments of risk are based on modelling that does not include large-scale methane releases from polar regions and some other positive feedback mechanisms. This report needs to explain which mechanisms have been and which have not been included so that policy makers can see the limits to the analysis being given. I accept that some mechanisms cannot be meaningfully modelled but it would be useful to give some sense of scale for these mechanisms. I'm not sure where this should best be shown - probably before this point! (David Flint, Cass Business School)	This topic is discussed in the subsection on terrestrial ecosystems in section B-2, and is also assessed in the Working Group I contribution to the Fifth Assessment Report.
1615	59742	SPM	16	33	16	34	A proposed slight addition to the conclusion about large-scale singular events. The TS contains a summary about large-scale singular events that is derived from Chapter 19 (TS, p. 53, line 34). I proposed a slight modification in the Chapter 19 and TS conclusions about large-scale singular events, as follows: The risk from large-scale singular events, such as large-scale irreversible deglaciation, of the East Antarctica Ice Sheet, remains comparable to that assessed in AR4. As explained in a comment on the overall WGII, the Technical Summary and Summary for Policymakers should summarize the conclusions about large-scale singular events in all WGII chapter—not just Number 19. The Chapter 28 about the Polar Regions contains additional summaries about large-scale ecosystem changes in Greenland, such as “rapid colonization of ice-free ground” (Chapter 28, page 25, lines 35-38). So, I proposed a slight addition to the overall TS summary (TS, page 53. Line 34), and now propose the same slight modification in the Summary for Policymakers (SPM, page 16, lines 33): The risk associated with large-scale irreversible deglaciation, of East Antarctica Ice Sheet remains comparable to that assessed in AR4 (19.6.3). However, rapid colonization of ice-free ground is evident around the Greenland Ice Sheet (28.2.3.7). (Thomas Dunning Newbury, U.S. Department of the Interior (retired))	This text has been revised for clarity, and the broader conclusions presented in section B of the SPM include findings relevant to other large-scale nonlinear earth system responses from across the chapters of the Working Group II contribution. The text on the large-scale singular events reason for concern, specifically drawing from Chapter 19, is traceable to the assessment and synthesis in that chapter section.
1616	60445	SPM	16	33	16	34	delete "ice sheet" (DENMARK)	The phrase has been retained for clarity, now within Box SPM.4.
1617	79274	SPM	16	33	16	34	Comment: isn't this due to lack of improved information about the risk, rather than the actual risk remaining the same - there's a big difference. I'd have thought that as the Earth has continued to warm, the risk would be greater than when assessed in AR4. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been revised for clarity, and the associated figure illustrates the relationship between the reasons for concern and observed and projected global mean temperature increase. Please see B-1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1618	80355	SPM	16	33	16	34	Need to supplement the "at least partial deglaciation of the Greenland Ice Sheet" with a confidence/likelihood. Also, the "remains comparable to that assessed in AR4" could be interpreted to refer to the risk or the actual partial deglaciation. Suggest to clarify what is comparable to the AR4 (if it's the latter, then it should be in the WGI report, not here). (Gian-Kasper Plattner, IPCC WGI TSU)	This text has been revised for clarity. Please see B-1.
1619	66136	SPM	16	41	0	0	I suggest this figure and Fig 19.5 becomes 3 diagrams: 2001, 2009 and this diagram all in one figure. This would allow visual comparison of the current with previous assessments (something which the text refers to). Mitigation lines could be removed from the 2009 figure. Overall, I think the RFC burning embers diagram has its problems, mainly because it is not strictly replicable by other scientists: there are no metrics against the copours (apart from their start and end points) and it is based on analysts' opinions. This may work where the analysts are the same (which they are in these 3 cases, which the figures more comparable than they otherwise might be), but where they are not it is not easy to see how the portrayed outcomes (the colour schemes) are comparable between one evaluation and another. More explanation of method might help to overcome these problems. (Martin Parry, Imperial College)	Due to space considerations in the SPM, this figure cannot include a detailed comparison with past reasons for concern, but comparison with the previous version is discussed in the supporting sections of Chapter 19. This discussion also provides discussion of the rationale for the color transitions presented.
1620	66078	SPM	16	45	16	46	Consideration of the role of ecosystem services is very limited in the SPM. This is an important concept and merits attention in section "D" of the SPM. (FINLAND)	The role of ecosystem services is now further featured in sections B-1 to B-3 and sections C-1 and C-2, within the restructured summary for policy makers.
1621	79275	SPM	16	45	17	22	Could this say a bit more about the role of futures analysis in decision-making, and against which policy and technology interventions can be tested for their sustainability? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The decision-making context is now substantially treated in section A.
1622	71015	SPM	16	45	18	39	Section D - While this section deals with a number of important concepts, there does not appear to be any coherent storyline, such that it reads as a series of unrelated statements. The concept of transformation, which appears central to the AR5, needs to be more clearly laid out (acknowledging definition in Box SPM.1 and Australian example in Table SPM.2). It is a term that will be met with concern by some decision-makers, and a more nuanced discussion is required than appears in Box SPM.7. Examples of transformational changes, and analysis of the key drivers of transformational changes, would help. (CANADA)	Improved flow of concepts has been achieved throughout the summary for policymakers, including in this subsection within the restructured document.
1623	63980	SPM	16	47	0	0	Please add an introductory paragraph like in TS, P 56 L 4-13 and include completely the starting point and first finding of the executive summary of Ch. 20 (P 2 L 45-51) as well as of the TS (P 56, L 42-47): "Because CC is a growing threat to development, it is a high priority....but climate-resilient pathways can improve prospects for sustainable development. (high confidence). (GERMANY)	Although this specific text has not been added, this specific topic is now more clearly introduced in the section.
1624	61802	SPM	16	48	17	22	The concept of climate-resilient pathways, and what they mean for policy making, is not clear. Please include an explanation. Also, transformation is only mentioned once and its meaning is not explained either. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Transformation is defined within the box of terms for the summary for policymakers (Box SPM.1), and the concept of climate-resilient pathways is now more explicitly introduced within the subsection.
1625	62469	SPM	16	48	17	22	This is a critically important section for many developing countries. As yet, there is little understanding on how to accomplish climate resilient development in practice. The section is, unfortunately, not very informative. It would be useful to know, for example, whether scientific understanding of impacts is sufficiently advanced to be able to plan at sub-national units like states and smaller administrative units. What are the differences between planning for exceptional events and for "mainstreaming" development. Procedurally how is this done in different countries? What are good practices to emulate? (INDIA)	A paragraph on roles for actors across scales is now included.
1626	68444	SPM	16	48	17	22	General comment: the idea of "climate resilient pathways" is based on a UN report (see p. 4 of Chapter 20). Chapter 20 does not show that the idea of "climate-resilient pathways" is drawn from the review of the academic literature. (NETHERLANDS)	Climate-resilient pathways are part of the mandated content for assessment within the plenary approved outline.
1627	79854	SPM	16	48	17	22	Consider including ecosystem-based approaches which would fit naturally into this section. (NORWAY)	Ecosystem-based approaches are now considered, especially within the table providing examples of specific adaptation options (Table SPM.2).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1628	63981	SPM	16	50	17	22	The subchapter is not clearly structured. We suggest starting with an explanation/definition of "climate resilient pathways", see suggested sentence in comment "Climate resilient pathways include....", and then explain steps and elements this involves/includes. Furthermore, it is not clear how the paragraph on adaptation costs, SPM P 17 L 11-17, relates to the heading "Climate Resilient Pathway and Transformation". The meaning of the concept "climate resilient pathways" is not clearly described and defined. The sentence P 16 L 50-52 describes "climate resilient pathways" differently to the paragraph P 17 L 1-9. Suggestions: Delete 1.) the sentence SPM P 16 L 50-52 "These processes....with surprises"; and 2.) SPM P 17 L 1-3. Instead of SPM P 17 L 1-2 insert: "Climate-resilient pathways include actions across scales a) with the ultimate aim of sustainable development, b) mitigation as the way to keep climate change impacts moderate rather than severe, c) adaptation as a response strategy to cope with impacts that cannot be (or are not) avoided, and (d) elements of sustainable development pathways that contribute to climate-resilience." (modified after: TS P 56 L 28-31). The meaning of "transformation" in relation to "climate resilient pathways" is not clearly described. Is a "climate resilient pathway" an element of "transformation" or is "transformation" an element of analysing or achieving a "climate resilient pathway"? Towards that respect, there is also an overlap of information in the sentences/paragraphs SPM P 17 L 4 "Since mitigation...." to L 9 and SPM P 17 L 19 to 22. In addition, the statement "Achieving climate-resilient ..." gives a number of expressions, which are too general to be helpful (what does dynamic livelihood mean? what is multidimensional poverty?). Please be more specific by i. a. including the references directly behind these expressions. (GERMANY)	Climate-resilient pathways are now more clearly introduced. Assessment findings on adaptation costs are presented in a separate subsection. Improved flow within the subsection has been achieved, introducing findings on the diversity of these concepts.
1629	70616	SPM	16	51	16	54	Hard to understand this jargon (NEW ZEALAND)	Clearer, more concise language is now used.
1630	64342	SPM	16	53	0	0	Clarity required - what are "emerging climate parameters?" (Don Lemmen, Canada National Study)	This phrase is no longer used.
1631	79855	SPM	16	53	16	54	Monitoring climate parameters and their effects as well as effectiveness of adaptation and mitigation efforts is a very important point that should be highlighted, especially to emphasise the importance of financing such monitoring programs over long time (NORWAY)	Several findings on monitoring are now presented within sections A-3 and C-1 of the summary for policymakers, although not in this subsection.
1632	78087	SPM	17	1	17	1	It is written "Climate -resilient pathways include actions across scales", are these spatial and temporal scales? (Philippe MacClenahan, Synergies Environnement)	This phrase is no longer used.
1633	65397	SPM	17	1	17	3	The language is confusing because risk management also includes reducing climate change and its impacts. The following language under (b) seems to work better: to assure that effective management of the remaining climate change risk by adaptation can be implemented and sustained. (Klaus Radunsky, Umweltbundesamt)	Clearer phrasing has been adopted.
1634	61804	SPM	17	1	17	9	Climate-resilient pathways (to sustainable development?) is a new topic for the IPCC so a fuller explanation of how they relate to mitigation (including timing and level of climate change) would help policy makers here. Also, the key message that you're trying to bring out in this section is not clear. Recommend that some key statements from the Executive Summary of Chapter 20 could be included here: Ch.2, p.2, l.35-37, "threats to sustainable development are greater if climate change is substantial than if it is moderate - and opportunities for sustainable development. are greater if climate change is moderate rather than substantial"; Ch.2, p.3, l.15-17, "...above some high levels of climate change, the impacts on most systems would be great enough that climate resilience is no longer possible for many systems and locations". This could perhaps be included in section D(ii) on co-benefits instead but it is important to include it in the SPM. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Clearer introduction of this topic has been achieved. Findings related to the suggested text have been included.
1635	80130	SPM	17	1	17	13	I don't think it is appropriate to pick "the most recent" estimate as implicitly better than others and give this range, even if it is politically desirable to have one. The range simply is extremely broad depending on assumptions, response strategies and real climate impacts. We should acknowledge this and refrain from picking certain values or narrow intervals as best estimates. There is simply not enough convergence in the literature. (Jochen Harnisch, KfW)	This distinction is still made, as it reflects the conclusion that even the most recent estimates have important omissions and shortcomings.
1636	68445	SPM	17	2	17	3	Indicating statement as "high agreement" is not supported by the underlying material. Medium agreement would be more appropriate. Please also bear in mind that "resilience" is a frame to interpret empirical phenomena. Using "resilience" as a research frame is also still under discussion itself. See e.g. E.g.: Smith, A. and Stirling, A., 2010, The politics of social-ecological resilience and sustainable socio-technical transitions. Ecology & Society, vol. 15, iss. 1, art. 11. (NETHERLANDS)	The assessment in support of the provided level of confidence can be found in the cited chapter sections.
1637	68446	SPM	17	6	17	9	Statement is not clear, please rephrase the sentence. (NETHERLANDS)	The latter sentence here, which appears to be the focus of the comment, is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1638	61942	SPM	17	7	17	9	There is an unchallenged assumption here that across temporal and spatial scales there will be resilient development pathways that do not conflict. Given that human history is replete with examples of societies understanding and reacting too late to crises, so too may climate resilient development pathways in one area or for a particular group bring small or unmitigated and prolonged disasters for others - even if only through the cascades of unintended consequences (e.g. of scale-specific responses) (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This statement is no longer included.
1639	78088	SPM	17	7	17	9	Syntax for sentence beginning with "Achieving climate resilient pathways .." is not clear (Philippe MacClenahan, Synergies Environnement)	This statement is no longer included.
1640	67970	SPM	17	11	0	0	"Recent research suggests that mitigation and adaptation are likely to be more effective when they are designed and implemented in the context of other interventions within the broader context of sustainability and resilience." (Chapter 20 page 16 lines 41-50) This is a fundamental message of the IPCC which has been stated since the TAR that needs to be reinforced as there are always newcomers to the climate change field unfamiliar with past reports; and therefore, we strongly suggest that it is included in the SPM as a starting point. (JAPAN)	Findings addressing synergies are provided in both subsections of section C.
1641	70279	SPM	17	11	17	11	Need to mention not only adaptation costs, but also costs for non- action (e.g. economical long-term benefits of adaptation). (SWEDEN)	Assessment of aggregate economic impacts is presented in section B.
1642	68447	SPM	17	11	17	13	Could you also indicate how large adaptation costs can be as a percentage of GDP? (NETHERLANDS)	This option was considered, but the current material featured was deemed the most reflective of the underlying assessment and most robust.
1643	61805	SPM	17	11	17	17	There is insufficient detail on what these costs are based on to be of use here. What is hidden in this estimate? Simply the cost of adaptation? The savings/costs of avoided impacts? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Extended assessment of estimates of adaptation costs, and the ways in which they are determined, is presented in the underlying chapter.
1644	62707	SPM	17	11	17	17	The adaptation costs depend strongly on the World Bank reports. The world bank reports are not peer-reviewed papers. This is out of the principle of the IPCC reports. The descriptions should be deleted. Otherwise, a note that the estimates are not based on peer-reviewed papers should be clearly described at least. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	Non-journal literature is part of the required evidentiary basis for the report, with guidelines provided to authors on its inclusion.
1645	65609	SPM	17	11	17	17	These estimates should be different in the various scenarios (RCPs). Something should be said about this. If the estimates are NOT scenario-dependent that is itself very significant. (David Flint, Cass Business School)	The estimates presented reflect the available analyses. The current wording now specifies the full timeframe considered, and please note that level of temperature increase does not substantially diverge across scenarios until the latter portion of this timeframe.
1646	68448	SPM	17	11	17	17	Reference paragraphs 17.3.10 and 17.3.11 do not exist (NETHERLANDS)	The chapter reference has been corrected.
1647	71016	SPM	17	11	17	17	Highlighting the low confidence on these estimated costs is important - is it possible to quantify the broader range implied by this paragraph? Would benefit from clarity of what is included in such estimates and what is not included (to what degree do current adaptation deficits affect this number?). Also it may be worth highlighting that the beyond 2050 costs will be very much dependent upon mitigation choices made in the next few years. (CANADA)	This point is most substantially addressed through assessment of risks across levels of climate change in the 2nd half of the 21st century and beyond, as introduced in section A and presented in section B.
1648	68449	SPM	17	12	17	13	Most recent estimate of global adaptation costs, as shown in table 17.2, is that from World Bank 2010. This source states that in 2050 annual adaptation costs range from 70 to 100 USD billion. Not from 75 to 100 USD billion. (NETHERLANDS)	This range is now provided.
1649	77457	SPM	17	12	17	13	if the adaptation cost estimates are referred to, it would be useful not only to refer to the long-term figure but also the closer estimates, like those for 2010 to 2019 (56 to 73 bn USD per year in developing countries, according to the same World Bank study) (Sven Harmeling, Germanwatch)	The 1st finding presented now focuses further on estimates compared to current funding, addressing this point while maintaining focus on the most important conclusions of the chapter.
1650	78270	SPM	17	12	17	13	Do experts consider this a conservative or a upper level cost estimate range? It would be helpful to know how experts view this current range. (Shane Easter, Carnegie Institution of Washington )	The assigned levels of confidence are intended to reflect the imperfect state of knowledge at present: high confidence that the estimates are highly preliminary, with low confidence in the range provided.
1651	68450	SPM	17	14	17	15	Cannot find the reference in the main text of chapter 17 corresponding to the statement '., and important shortcomings in the data and methods available for costing adaptation suggest the low end of this range could be substantially lower.' (NETHERLANDS)	This statement is no longer provided.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1652	79276	SPM	17	15	17	17	Given the previous sentence in this para, which notes that the upper limit of cost estimates could be higher and the lower limit could be lower – it seems odd to then add a sentence that focuses only on what might raise estimates. Suggest deletion or balance by inserting a sentence on how costs might be lower too. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The 1st sentence is no longer included.
1653	78089	SPM	17	16	17	16	Term "sectors" does not seem appropriate for "ecosystems" and "socially contingent effects" (Philippe MacClenahan, Synergies Environnement)	This sentence is no longer included, but the terminology is widely used within the report.
1654	63982	SPM	17	16	17	17	It is stated which aspects have not been included, but it remains unclear which ones have been considered. (GERMANY)	This sentence is no longer included.
1655	65398	SPM	17	16	17	17	It is suggested to delete the last part of the sentence because it seems a poor logic to include in the costs of adaptation to the impacts of climate change also the costs to address the adaptation deficit or the costs to adapt to already existing impacts of current/baseline climate variability. An alternative wording (as another sentence) might read as follows: Additional costs are required to address any adaptation deficit. (Klaus Radunsky, Umweltbundesamt)	This sentence is no longer included.
1656	61806	SPM	17	17	0	0	Also industrialized countries can have adaptation deficits (Katrina, New York hurricane..) (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This sentence is no longer included.
1657	79277	SPM	17	17	17	17	"limitations" better than "deficits"? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence is no longer included.
1658	63983	SPM	17	18	0	0	This important paragraph on adaptation costs seems a bit misplaced under this heading. How does it relate climate-resilient pathways and transformation? It is suggested to insert an additional para between the paras "Estimates of global adaptation costs..." (L 11-17) and "avoiding limits to adaptation..." (L 19-22) bridging the thoughts from the causal link of mitigation and adaptation (first para of the page) to adaptation costs and limits. Please include in bold two statements from the executive summary of Ch 16, P3 L 8-9: "Social limits to adaptation are dynamic over space and time due to normative judgements and values of actors, technological change, and emergent properties of complex systems (high agreement, low evidence)." and Ch 16, P 3 L 17-21: "The greater the magnitude of climate change, the greater the likelihood that adaptation will encounter limits (high agreement, low evidence). Mitigation and adaptation are complementary strategies. Greater adaptation efforts will be required to achieve the objective of actors if mitigation efforts are not successful in avoiding high magnitudes of climate change. There are, however, limits to the extent to which adaptation could reduce the impacts not avoided by mitigation, and residual loss and damage may occur despite adaptive action." (GERMANY)	The paragraph is no longer included within the subsection. The 2nd suggested sentence is now featured, with improved flow across the material.
1659	68452	SPM	17	19	17	19	Adaptation should start where risks are intolerable; where probability multiplied with consequences is the largest, so in the upper right corner that now seems 'out of reach' for adaptation. (NETHERLANDS)	This paragraph is no longer included.
1660	67971	SPM	17	19	17	20	The reader should be oriented with the definition of "limits to adaptation," and therefore, we suggest that lines 16-17 on page 18 (Limits to adaptation emerge from the interaction between climate change and biophysical and socioeconomic constraints (high agreement, robust evidence)). be inserted at the beginning of this paragraph. (JAPAN)	This paragraph is no longer included.
1661	68451	SPM	17	19	17	20	The idea of 'avoiding limits to adaptation' and the illustration of Box SPM 7 Figure 1 is unclear. The rectangle of Box SPM 7 Figure 1 suggests a confined space – that is non-existent. The concave graph on the left side of the figure should be repeated a couple of times, gradually moving to the upper right corner. Risk = probability of occurrence of a hazardous event multiplied by the consequences if the event occurs. So if one axis represents the probability or frequency, and the other axis the consequences of intensity of the impact than there is no rationale possible for convex graphs like the one in the upper right corner. (NETHERLANDS)	This paragraph is no longer included.
1662	63984	SPM	17	19	17	22	A brief example on what these transformations might look like would be helpful. This example could also be inserted into Box SPM.7 (P 18 L 30-35). (GERMANY)	More specific information is now provided within the findings on transformation.
1663	63985	SPM	17	19	17	22	The second sentence should be printed in bold too. (GERMANY)	A related finding is now used as a bold finding.
1664	71017	SPM	17	19	17	22	Clarity is required here - provide an example of a policy response needed that goes beyond mitigation and adaptation. The current formulation is not communicated in a useful way to decision-makers. (CANADA)	This material is no longer included.
1665	60520	SPM	17	20	0	0	You should say: "require radically different energy policies and other transformations...." (Hélène CONNOR LAJAMBE, HELIO International)	This sentence is no longer included.
1666	76202	SPM	17	20	17	24	This is also relevant to food security - a key vulnerability for populations in less developed countries but also a vulnerability of global markets -- so probably should reference Cpt 7 (UNITED STATES OF AMERICA)	This comment appears to be misplaced.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1667	68453	SPM	17	21	17	21	Indicating statement as "high agreement" does not reflect the discussion in the literature. Discussion in the literature also includes warnings and concerns about deliberately created transformations. E.g.: Meadowcroft, M., 2009, What about the politics? Sustainable development, transition management, and long-term energy transitions. Policy Sciences, vol. 42, iss. 4, pp 323-340. E.g.: Smith, A. and Stirling, A., 2010, The politics of social-ecological resilience and sustainable socio-technical transitions. Ecology & Society, vol. 15, iss. 1, art. 11. E.g.: Voss, J.-P., Bornemann, B., 2011, The politics of reflexive governance: challenges for designing adaptive management and transition management. Ecology & Society, vol. 16, iss. 2, art. 9. (NETHERLANDS)	This finding is no longer included.
1668	65376	SPM	17	23	0	0	It is suggested to include after the paragraph in lines 19 to 22 on page 17 some language from chapter 20 in the context of geo-engineering. The wording might read as follows: Every effort should be made to have available the capacities necessary for climate-resilient pathways for sustainable development in order to avoid the need to consider deployment of geo-engineering options later in the 21st century. Such situation might happen if global climate change mitigation will not be sufficient to avoid relatively high levels of impacts and the it would not be possible to avoid serious disruptions to development processes because of the limits of adaptation. (Klaus Radunsky, Umweltbundesamt)	This suggested text is not one of the most central conclusions of the assessment.
1669	65895	SPM	17	24	0	0	Title of D.ii. Should include the word "conflicts" (SPAIN)	This is no longer a separate subsection.
1670	70274	SPM	17	24	17	24	Is "Examples of" needed here? In an SPM, one should try to provide a comprehensive and coherent message, which of course does not imply listing everything, but a suitable level of generalisation. (SWEDEN)	This is no longer separate subsection.
1671	79856	SPM	17	24	17	48	It also seems to us to be an imbalance between the description of impacts of different mitigation options in this section. It is felt that the potential impacts of nuclear power as a mitigation option in relation to safety, nuclear proliferation, weapon p (NORWAY)	This subsection has been substantially reduced into a single paragraph in C-2, with improved balance across the material.
1672	70275	SPM	17	24	18	10	Would seem proper to discuss all the world regions, e.g. also Africa and Latin America. (SWEDEN)	this subsection has been substantially reduced into a single paragraph without regional examples.
1673	79278	SPM	17	24	18	10	More attention needed on the benefits of sustainable intensification of agriculture / climate smart agriculture and the opportunities of triple win - increase yields, reduce inputs, and protect environment. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This subsection has been substantially reduced into a single paragraph, so this topic has not been added.
1674	79857	SPM	17	24	18	10	Please consider mentioning ecosystem-based approaches which would fit naturally into this section. (NORWAY)	This topic is addressed in examples provided within C-1.
1675	79858	SPM	17	24	18	10	We would expect several of these statements to be valid also for other regions than that region mentioned in the particular statement. For instance, that reduction in in emissions of GHG can also give health co-benefits. This is expected to be valid for m (NORWAY)	This subsection has been substantially reduced into a single paragraph without regional examples.
1676	77553	SPM	17	24	18	35	A major concern, not mentioned here, is the great increase in small-scale wood burning (heating your own house by burning wood in a stove) in Nordic countries and several Central European countries (Austria, Germany etc). This is done to protect the climate by reducing CO2 emissions, but burning wood so inefficiently produces a lot of fine particles, which is very harmful to public health, and also wastes a lot of energy. The best solution would be to burn wood very efficiently e.g. in large installations (Juha Pekkanen, National Institute for Health and Welfare)	This topic is reflected within the revised paragraph replacing this subsection.
1677	79279	SPM	17	26	17	26	"can have positive and negative implications..." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence is no longer included.
1678	70617	SPM	17	26	17	27	This would read better if the order is changed to: Responses to the risks of climate change can have implications for the resilience of societies and systems beyond their primary objectives. (NEW ZEALAND)	This sentence is no longer included.
1679	62470	SPM	17	29	17	30	The statement on adaptation in one sector creating risks for other sector is a loaded and one sided conclusion. This could be true in exceptional cases. What can be said is that while designing adaptation strategies, care should be taken to ensure that no tradeoffs occur. (INDIA)	A more balanced related conclusion is now presented in C-2.
1680	64343	SPM	17	29	17	30	How do such trade-offs relate to the concept of maladaptation? (Don Lemmen, Canada National Study)	This paragraph and table are no longer included.
1681	63350	SPM	17	32	0	0	Table SPM 6 is unclear. "real or perceived externality" is a poor header perhaps real or perceived negative impacts. (IRELAND)	This table is no longer included.
1682	63351	SPM	17	32	0	0	Table SPM 6 Perceived risk on Agricultural Subsidies is a political assesement (IRELAND)	This table is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1683	63352	SPM	17	32	0	0	Table SPM 6 Perceived risk on Water recycling/reuse would be ill placed, as the measure proposed is to improve these systems (IRELAND)	This table is no longer included.
1684	70187	SPM	17	32	0	0	Table SPM.6: Uncomfortable with Table. Doesn't really do what it says and not in context of trade-offs and limits. Question whether it should be used in SPM - high risk. This table needs very careful consideration because it contains some inappropriate or risky elements, especially as it is included in the SPM. Some of the adaptation strategies named in column 2 in some circumstances would be a maladaptation. By putting it in the SPM there is a risk these would be perceived as credible adaptation options by policymakers. For example, the strategy 'anticipatory endangerment listings' is highly contested. At least should add a caveat to the caption: These are not necessarily adaptation strategies that are supported as effective or successful by the literature, but they are strategies referred to in the literature. (Jean Palutikof, Griffith University)	This table is no longer included.
1685	79280	SPM	17	32	17	32	SPM6: Lots of negatives in real or perceived externality. Nothing on water catchment management and danger in only emphasising negatives of water trading, then promotes misconceptions on benefits for some countries in utilising water for economic benefit in trading goods overseas. Unclear why promoting increased use of pesticides etc. Table could also usefully cover trade-offs and co-benefits between adaptation and mitigation actions. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included.
1686	61807	SPM	17	35	0	37	This is an example of an unnecessarily negative statements. Some biosphere options may lead to negative impacts, but many others not, such as forest conservation, agroforestry, agriculture, etc. (e.g. see same page lines 50-52). At least change into "some of the actions" or add positive ones. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	A more nuanced conclusion is now presented.
1687	62471	SPM	17	35	17	37	Implications of mitigation action on biodiversity, may not be of much relevance in this section, since this in an issue for WG3. However what may be correct is that monocultures of fast growing tree species or biofuel crops could enhance the vulnerability of the system. (INDIA)	A more nuanced conclusion is now presented as a specific example.
1688	67972	SPM	17	35	17	37	A concern presented in Chapter 4 and should be stated here is about large-scale forest conversion or land use change leading to habitat loss and fragmentation (e.g. paragraph 4.2.4.1 P11L12,P12L19), and not about "use of terrestrial biosphere in climate mitigation actions" as a whole, (e.g. mitigation actions by conservation of forests). Introduction of fast-growing tree species, which is an effective means for the rehabilitation of degraded or bare lands, should not be denied in general as mentioned here. Further, this sentence seems to oppose the use of the terrestrial biosphere in climate mitigation actions and thus contradicts UNFCCC Article 4 paragraph 1(d) , "Promote sustainable management, and promote and ... including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;." Regarding fast-growing tree species, the relevant text raise concern about increasing water consumption in some country (semi-arid areas) in paragraph 3.7.2., but this sentence would be mistaken as if these lead to negative impacts on ecosystem and biodiversity as a whole. This sentence should be deleted or revised so as to avoid unnecessary misunderstanding. (JAPAN)	A more specific example in line with this suggestion is now presented.
1689	68454	SPM	17	35	17	37	This conclusion is not based on the referred sections (NETHERLANDS)	A more nuanced specific example is now presented, fully supported by the underlying assessment.
1690	79859	SPM	17	35	17	37	This part of the text is very important and it is important to reflect findings in the best way particularly because it may have implications for mitigation and adaptation options. If the text as in the draft is balanced and correct , this issue should be (NORWAY)	A more nuanced specific example is now presented in place of this statement.
1691	68455	SPM	17	35	17	42	While the ExSum concludes that " bioenergy crops require large amounts of water for irrigation that the amount required for other mitigation measure", the SPM report conclude differently that "...cultivation of biofuels and payments under REDD, will results in mixed and potentially detrimental impacts on land-use and on the livelihoods of poor and marginalized people". The reference to the text should also corrected to 3.7.2.1, also the word REDD should be defined before use. (NETHERLANDS)	This statement is no longer included.
1692	71018	SPM	17	35	17	42	Suggest splitting this into two separate paragraphs, the first dealing with biofuels and the second on geoengineering. (CANADA)	Instead, the whole subsection has been greatly reduced into a single paragraph with improved balance of material.
1693	79281	SPM	17	35	17	42	This paragraph is muddled. The bold text refers to the terrestrial biosphere only, but it is followed by a sentence about the terrestrial biosphere - this is OK - then the final sentence is about manipulation of the ocean. Suggest this last sentence is separated out into a separate paragraph. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This whole subsection has been boiled down to a single paragraph with improved balance and focus on the most important findings.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1694	79282	SPM	17	35	17	42	Would be helpful to give a bit more detail on what the environmental and social consequences are.... (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Instead, the whole subsection has been reduced to a single paragraph reflecting the most important findings.
1695	56322	SPM	17	37	17	39	I suggest Replacing "Climate policies, such as encouraging cultivation of biofuels and payments under REDD.." with "Some climate policies, such as encouraging cultivation of biofuels and payments under REDD may result in detrimental impacts on land-use and on....." (Paul WOODS, World Vision)	This statement is no longer included.
1696	62472	SPM	17	37	17	39	It is not clear how payment for REDD mechanism can lead to detrimental impacts on livelihoods, again this is an issue for WG3, where these issues are dealt in detail. REDD actually leads to conservation of biodiversity and ecosystem services further enhancing the livelihoods and reducing vulnerability for the forest dependant communities. Instead the paragraph could state that well designed and implemented REDD mechanism could provide multiple benefits. (INDIA)	This statement is no longer included.
1697	63353	SPM	17	37	17	39	The discussion on REDD is out of place (IRELAND)	This material is no longer included.
1698	63986	SPM	17	37	17	39	Please modify the sentence "Climate policies, such as encouraging cultivation of biofuels and payments under REDD, will result in mixed and potentially detrimental impacts on land-use and on the livelihoods of poor and marginalized people. ..." 1) replace "will" with "may"; 2) the acronym REDD is different in this chapter from the one used in the TS P 58 L42 REDD+, this should be harmonized because there is a difference in meaning. In addition, please explain REDD in the glossary. (GERMANY)	This statement is no longer included.
1699	67973	SPM	17	37	17	39	The sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts on land-use and on the livelihoods of poor and marginalized people." presents a very much different evaluation on REDD+ from TS of WG3 (page45); "The implementation of REDD mechanisms and its variations that can represent a very cost-effective option for mitigation with high social and other environmental co-benefits". The relevant text of the underlying report (paragraph 9.3.3.4) raises issues related to community participation etc. in the ongoing REDD+ pilot projects, however, the REDD+ framework itself should not be judged as "potentially detrimental" only by the results of those pilot projects that are being implemented and are still in the early stages and in general lack sufficient infrastructures, framework, governance and capacity. The reviews of projects in Chapter 9, 13 are not always the result of result-based projects with payments under REDD, and references don't always reflect the result of Decision1 of UNFCCC COP16 where safeguards for REDD+ were defined, which should be promoted and supported when undertaking REDD+ activities. (Further, contents in Chapter 13 show some positive results projects even in early stages.)There is not a sufficient basis for conclusion of medium confidence.Due to the above reasons, this sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts" should be deleted.But if some reference to (it any content) regarding climate policy is inevitable here, the sentence should be revised as follows; : "As climate polices, such as encouraging cultivation of biofuels, may result in mixed impacts on land-use and on the livelihoods of poor and marginalized people, the appropriate measures should be considered. " for aforementioned reason, also the contents in chapter 13 do not mean the climate polices, such as encouraging cultivation of biofuels and payments under REDD, always result in mixed impacts on land-use and on the livelihoods of poor and marginalized people. The policies might have detrimental impacts unless the appropriate policies are introduced. (JAPAN)	This statement is no longer included.
1700	68456	SPM	17	37	17	39	This text is unbalanced. Section 13.3.1 also highlights the positive effects of mitigation policies on the poor and their livelihoods. Deletion of 'and potentially detrimental' would solve this (NETHERLANDS)	This statement is no longer included.
1701	79860	SPM	17	37	17	39	This sentence is fundamentally flawed and must be changed. The main draft report itself - 13.3.1.2 - states that experience to date is "inadequate to permit broad generalizations about the effects of REDD+ on livelihoods and poverty". While effects may be (NORWAY)	This statement is no longer included.
1702	58677	SPM	17	38	17	38	REDD+ is widely used term in UNFCCC, please revise REDD into REDD+ so as to be in line with the usage in UNFCCC. (chunfeng wang, State Forestry Administration, China)	This statement is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1703	61808	SPM	17	38	17	38	SPM 17 38 17 38 Delete "payments under REDD": Currently there is no empirical evidence for land use leakage or iLUC for REDD payments or large scale forest protection such as in Brasil. In quantitative impact studies of the full land use effects there is a possibility that leakage could occur under special circumstances of implementation mechanisms. However, the elimination of iLUC from REDD is currently strongly discussed under the driver and safeguard discussion of REDD negotiations. In short a statement that REDD "will result in mixed and potentially detrimental impacts on land-use" is not supported by the best available data from Brazil - the exact opposite is the case. Furthermore, there are strong safeguard developed to guarantee postive impacts on the livelihood of poor and marginalized people. Empirical evidence for detrimental or mixed impacts is currently non-existing or poor which does not at all support a "medium confidence" statement. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This statement is no longer included.
1704	77543	SPM	17	38	17	38	Write: " ... inappropriate payments under REDD+ ... " (SWITZERLAND)	This statement is no longer included.
1705	80609	SPM	17	38	17	38	The terminology "REDD" is inaccurate. Usually "REDD+" is more common in the international climate negotiations. SUGGESTION: replace "REDD" with "REDD+", in order to keep consistent with UNFCCC negotiations. Replace "REDD" with "REDD+" in other places. (Jiahua PAN, Chinese Academy of Social Sciences)	This statement is no longer included.
1706	58937	SPM	17	39	17	41	This sentence dealing with marine issues is out of place in a paragraph with a terrestrial highlighted header. All but one of the section references following the sentence are to terrestrial sections.I suggest a separate paragraph dealing with marine aspects of climate mitigation.Also, the reference to "very large associated .. social consequences" appears highly speculative and will in any case strongly depend on the specifics of the particular geoengineering approaches. (Chris Vivian, IMAREST)	This statement is no longer included.
1707	63987	SPM	17	39	17	41	Manipulation of oceans is only one example of various CE-"techniques". This should be expressed more clearly. Please add "e.g." (involving e.g. manipulation of...). In addition, please exchange the word "ameliorate" with "alleviate" (there is no amelioration of climate change). In addition, Social consequences are only one dimension in a broader set of potential socio-economic consequences of geo-engineering (as "social" rather only refers to distribution of resources). Therefore please change to "....and socio-economic including social, political, ethical consequences". (GERMANY)	This statement is no longer included.
1708	77452	SPM	17	39	17	41	The impacts of geoengineering should not only be described as "very large" but there should be some kind of reference to potential negative effects. (The Royal Society, 2009, Geoengineering the climate: science, governance and uncertainty) (Sven Harmeling, Germanwatch)	This statement is no longer included.
1709	79283	SPM	17	39	17	41	Is "very high confidence" justified here? Section 6.4.2 doesn't seem to offer such confidence, its assessments are expressed in uncertain terms eg page45 line 20 "...have potentially negative consequences..", page 45 line 23 "...as yet unclear side effects...", page 45 line 27 "...may cause..". (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is no longer included.
1710	79861	SPM	17	39	17	41	We believe that this statement could be misunderstood since it may be confused with storage in geological reservoirs under the seabed which is not geoengineering in this report (see Glossary). Therefore we propose to add after deep ocean: "above the seafloor (NORWAY)	This statement is no longer included.
1711	61809	SPM	17	39	17	42	This discussion on geoengineering is too brief and only considers a small range of proposed techniques. There needs to be a fuller description of possible impacts of geoengineering (in the context of a future world with a different climate). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This statement is no longer included.
1712	79284	SPM	17	39	17	42	Doubtful on "high confidence" on the statement on "large scale" environmental and social consequence geoengineering (ocean fertilisation, CO2 subseabed injection). This is an area that is not well understood; most interpretations are based on extrapolative with some scientific based speculation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement is no longer included.
1713	77458	SPM	17	44	0	0	the selection of regional examples appears a bit arbitrary, what about the other regions? (Sven Harmeling, Germanwatch)	Regional examples are no longer presented in this subsection, within the summary for policymakers. Instead, a line of sight to chapter subsections supporting this statement is included in a footnote.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1714	71019	SPM	17	44	17	47	Reducing such emissions may also help reduce the physical impacts of climate change (see T. C. Bond, S. J. Doherty, D. W. Fahey, P. M. Forster, T. Bernsten, B. J. DeAngelo, M. G. Flanner, S. Ghan, B. Kärcher, D. Koch, S. Kinne, Y. Kondo, P. K. Quinn, M. C. Sarofim, M. G. Schultz, M. Schulz, C. Venkataraman, H. Zhang, S. Zhang, N. Bellouin, S. K. Guttikunda, P. K. Hopke, M. Z. Jacobson, J. W. Kaiser, Z. Klimont, U. Lohmann, J. P. Schwarz, D. Shindell, T. Storelmo, S. G. Warren, C. S. Zender Journal of Geophysical Research - Atmospheres, doi 10.1002/jgrd.50171, to be published 15 Jan 2013) (CANADA)	This point is now clarified.
1715	71020	SPM	17	44	17	48	Suggest avoiding the introduction of this new term "climate-altering pollutants". This term is not widely recognized, used or accepted and adds yet another term to the growing list of terms that try to convey that some substances are both air pollutants and climate forcers. Furthermore, air pollutants that contribute cooling effects would be captured by the phrase "climate-altering pollutants" and therefore reducing these might actually exacerbate rather than improve climate change impacts on health etc. Suggest saying what is meant, that is, "reducing emissions of pollutants that also contribute to climate warming". (CANADA)	Further adjectives have been added to reduce the opacity of the term.
1716	77552	SPM	17	44	17	48	This paragraph is very difficult to understand, please rephrase. By far the most import aspect in terms of public health impact is that reducing fossil fuel consumption reduces both CO2 and fine particle emissons (fine particles are not only local, but are transported for thousands of kilometers). This aspect should be spelled out clearly and with plain words. (Juha Pekkanen, National Institute for Health and Welfare)	The paragraph has been greatly shortened to present a single clear example.
1717	79285	SPM	17	44	17	48	Insert ' Other health co-benefits include reduced obesity and improved cardiovascular-respiratory health from increased walking and cycling as a result of active travel policies, and improved mental health from increased access to green and blue spaces. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	A shorter list of specific examples is now given, illustrating a single bold finding, although this example has not been added.
1718	71021	SPM	17	44	18	10	In these examples, why are they all associated with a particular region? All of them seem to be relevant in all regions, albeit some more than others for any particular region. If the purpose is to link back to the source chapter, this is done through the references. (CANADA)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1719	60521	SPM	17	47	0	0	Add "clean energy production" (Hélène CONNOR LAJAMBE, HELIO International)	This example is no longer included.
1720	80356	SPM	17	47	17	48	We were wondering why this particular example from this particular region was chosen to be elevated to the SPM? It might be better to remove the example. (Gian-Kasper Plattner, IPCC WGI TSU)	This example is no longer included.
1721	66137	SPM	17	50	0	0	3 regions mentioned here but not others ...IPCC delegates will wonder 'why these?' and are there no egs available from other regions? (Martin Parry, Imperial College)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1722	79286	SPM	17	50	17	51	It seems inconceivable that Europe is the only place in the world where 'there are opportunities for policies that improve adaptive capacity and also help meet mitigation targets'. Suggest removing reference to a single geographic region, or rephrase to say Europe is one example of where... (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1723	79287	SPM	17	50	17	51	To be honest, the same goes for the following 3 paras – are any of those opportunities limited to one geographic region – seems a strange and limiting policy signal to send! (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1724	63988	SPM	17	50	17	52	It is not comprehensible why only in Europe there are opportunities for policies that improve adaptive capacity and also help meeting mitigation targets. If these opportunities indeed only existent in Europe, it should be briefly pointed out why this is the case. If these opportunities exist also in other regions, this should be mentioned. One possibility of rearranging the paragraph would be to state first that there are opportunities for policies that improve adaptive capacity... and then point out one example that might refer to Europe. However, the example would be more helpful, if it was more concrete than just referring to "some agricultural practices", for example organic farming practices could be mentioned. (GERMANY)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1725	68457	SPM	17	50	17	52	It seems that these opportunities are also in other parts of the world; not just in Europe. (NETHERLANDS)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1726	68458	SPM	17	50	17	52	Is it possible to clairfy the tekst? (NETHERLANDS)	This paragraph is no longer included.
1727	70618	SPM	17	50	17	52	An example of such an agricultural practice would be helpful. (NEW ZEALAND)	This paragraph is no longer included.
1728	65898	SPM	17	50	18	10	These paragraphs related to sinergies, opportunities, conficts and tradeoffs in different regions are too much general, with no arguments to justify why the actions are specific for each region. The indicated actions could work in any region of the planet (SPAIN)	Regional examples are no longer presented in this subsection, addressing this point.
1729	67974	SPM	17	50	18	10	In this part, while there are description of examples of co-benefits, synergies and tradeoffs in one paragraph for each region, Asia and Africa are not described. In Asia, good examples such as projects of biogas digesters in China and Vietnam (chapter13, page16, line39 to 40) exist, so please describe them as individual paragraph. The project of biogas digesters can mitigate GHG emissions and avoid deforestation. (JAPAN)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1730	63354	SPM	17	50	18	11	The examples given are not region specific, and appear to be somewhat arbitrarily assigned. (IRELAND)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1731	59792	SPM	17	54	17	56	This statement is very vague. Can this be backed up with some examples? (AUSTRALIA)	This statement is now used across regions, with specific sectoral examples provided.
1732	68459	SPM	17	54	17	56	The statement seems to omit additional clause found in TS, ES and body of Chapter 25: "between alternative adaptation responses" (NETHERLANDS)	This phrase has been reintroduced where the sentence is now used in this subsection.
1733	63355	SPM	17	54	18	2	Difficult to understand this text. It appears to be introducing a new concept of "importing and exporting" climate risk. (IRELAND)	Clarified wording has now been used in the greatly shortened paragraph of examples within the subsection.
1734	68460	SPM	17	54	18	2	This paragraph cites section 25.7.5 (tourism) yet does not mention tourism. Was it left out by accident? (NETHERLANDS)	The specific examples within this paragraph are no longer presented for this region. A broader set of examples is now included across different sectors.
1735	63989	SPM	17	54	18	10	The same is true for the paragraphs on other regions (see our comment on the previous para on Europe). (GERMANY)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1736	63990	SPM	17	56	0	0	Which flow-on effects? (GERMANY)	this phrase is no longer used.
1737	57440	SPM	18	0	0	0	Table TS1: Cell corresponding to Europe, Terrestrial Ecosystems, Drought, & Wildfire should include 'Changes in phenology' relating ot both greening and bird migration. (Alison Donnelly, Trinity College Dublin)	This table is no longer included within the summary for policymakers. The comment has been considered within the technical summary.
1738	66135	SPM	18	0	0	0	a) Adaptation is mentioned in relation to statements about temperate but not lower lats: better to cover adaptn in both regions. Not clear if you are implying that adaptation is possible in one but not the other. Why not separate out the change in potential in regional terms first , and then deal with adaptation in a separate sentence? B) not clear what 'up to 2 deg C' might mean...does it mean any amount of warming, eg both 0.2 deg, and 1.9deg C would have the same effect? C) be clear that you mean specifically temperate tegions (and thus exclude non-temperate mid latitude) or do you mean really mid-laitude. If the former, what of the non-temperate areas at mid-latitude, which far exceed the areal extent of the temperate areas. (Martin Parry, Imperial College)	It is not clear to what this comment pertains.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1739	77544	SPM	18	4	18	4	Is it only in North America where synergies may happen? (SWITZERLAND)	Regional examples are no longer presented in this subsection. Instead, line of sight references to chapter sections supporting conclusions are provided, functioning as a portal to further examples in the underlying report.
1740	68461	SPM	18	9	18	10	The sub-heading should be discussed appropriately in a summary. (NETHERLANDS)	This paragraph is no longer included.
1741	76203	SPM	18	9	18	10	Some potential for synergy btwn adaptation and mitigation efforts. Luke warm - medium confidence assessment - not a large part of Small Island chapter. (UNITED STATES OF AMERICA)	This paragraph is no longer included.
1742	78090	SPM	18	9	18	10	The sentence makes a proposak that would require further explanation in terms of where and what synergies are thought of (Philippe MacClenahan, Synergies Environnement)	This paragraph is no longer included.
1743	79862	SPM	18	9	18	10	This message is too short to give any meaning. Please elaborate a little further, for instance with an example to make it easier to understand. (NORWAY)	This paragraph is no longer included.
1744	61810	SPM	18	12	18	35	The limits to adaptation need to be further developed. Where are these limits? The statements here are too general and could be more specific. What is the temperature change to which we can adapt (financially, socially and environmentally)? What are the precedents? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	A more specific paragraph is now included within this subsection (now C-2). Additionally, the regional key risks presented in the previous section now provide much greater information on potential for and limits to adaptation.
1745	61811	SPM	18	12	18	39	Not sure this box is useful. The statements could be placed in the main body of text. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This text is no longer included as a box, now within C-2.
1746	63991	SPM	18	12	18	39	Box SPM.7: It is not comprehensible to place the box on limits of adaptation behind the section on examples of co-benefits, synergies, and tradeoffs. This box should be moved to P8, starting in L 7 section B.i (Determinants and Iterative Management of Risk) or to section C.ii (Key and Emergent Risks) because limits to adaptation need to be considered within the decision making and are a part of managing risks through adaptation. (GERMANY)	This material is no longer included as a box, instead being integrated into the body of the section (now C-2). Further, more information in the preceding section is now given on the potential for and limits to adaptation in the context of regional key risks.
1747	68462	SPM	18	14	18	39	Please make the text more concrete. (NETHERLANDS)	Greater specificity has been achieved within this subsection (now C-2). Additionally, the regional key risks presented in the previous section now provide much greater information on potential for and limits to adaptation.
1748	77270	SPM	18	16	0	0	Consider: Include robust evidence from Technical Summary (page 27, line 27ff) on existing observation of occurrence of limits to adaptation (Kreft Sönke, United Nations University - Institute for Environmental and Human Security)	Greater specificity has been achieved within this subsection (now C-2). Additionally, the regional key risks presented in the previous section now provide much greater information on potential for and limits to adaptation.
1749	62473	SPM	18	16	18	17	The sentence needs more explanation (INDIA)	The concepts represented by this sentence are now presented more clearly in the context of the core findings in C-2.
1750	71022	SPM	18	16	18	18	Suggest that the concept of Limits to Adaptation needs to be more fully developed. It is not defined in the SPM or the SOD glossary. Is this similar to "dangerous anthropogenic interference" in that it is something that science informs, but depends on risk perception and different value systems? The concept has significant policy relevance. (CANADA)	The glossary does contain a definition for adaptation limit. Additionally, more specific assessment of adaptation potential and limits is now presented for regional key risks in the preceding section (now C-2).
1751	79288	SPM	18	17	18	17	Suggested insertion '... or moved back', so that the sentence reads 'some adaptation limits may be removed or moved back over time...' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence is no longer included.
1752	60522	SPM	18	18	0	0	Add improved institutional capacity (Hélène CONNOR LAJAMBE, HELIO International)	This sentence is no longer included.
1753	79289	SPM	18	18	18	18	"through changing attitude to risk or technological advancement." (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence is no longer included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1754	70188	SPM	18	20	0	0	Box SPM7 Fig 1. need to show that the 'limits to adaptation' line is dynamic and permeable which will better reflect what is written in the text. It is a gradient (rather than black or white or a fixed line). Suggest the figure needs changing or justification of the shape of curve adopted (which is modified and different from Klinke and Renn). The curves in the figure indicate that agents are insensitive to frequency or severity of impact. Figure should either be redrawn to reflect the standard risk curve shape showing that as frequency increases the acceptability of loss severity declines and vice versa. This suggestion aligns with the curves of Klinke and Renn in the cited reference. Much of the nuanced information in Chapter 16 about values in what makes an acceptable risk is not included in the figure. Possible solution is to include text from Chapter 16 page 7 lines 37-40 in the caption of the figure. (Jean Palutikof, Griffith University)	This figure is no longer included.
1755	71023	SPM	18	20	18	22	Box SPM.7 Figure 1. This figure introduces a number of terms that are not defined in the SPM or glossary. It is particularly important to say what distinguishes acceptable risks from tolerable risks. The shape of the curves, with the largest area comprising tolerable risks, is confusing. It is unclear that this figure effectively communicates concepts that could not be more clearly depicted on a standard risk assessment "heat map", which utilizes the same axes (Frequency and Consequence) and is a tool that is well understood by decision-makers. Suggest that the writing team superimpose the terms and limits presented here on the heat map figure. (CANADA)	This figure is no longer included.
1756	71024	SPM	18	25	18	28	Suggest replacing "residual loss and damage" with "residual impacts" to be more consistent with terminology of previous assessment reports and science literature. The term "loss and damage" is used increasingly in the policy community because of its prominence in the UNFCCC's Cancun Adaptation Framework. In that context it remains a political term that has not been defined. Rather than furthering confusion, it would be preferable in the SPM to use a previously defined and understood term. (CANADA)	The phrase residual loss and damage is no longer used in C-2.
1757	63356	SPM	18	26	18	28	This is perhaps the most important finding of the report, yet is not give any prominence. It should be flagged in the introduction. "There are limits to adaptation. The greater the magnitude of climate change the greater the likelihood of reaching these limits to adaptation. If mitigation efforts are unsuccessful, adaptation will be unsuccessfully in effectively reducing the impacts of climate change." (IRELAND)	This finding has been elevated to the start of the paragraph, now in C-2.
1758	63993	SPM	18	30	0	0	This sentence duplicates the one on P 17 L 20-22. (GERMANY)	A single paragraph on transformation is now provided in C-2.
1759	68463	SPM	18	30	18	30	'Transformation' is positioned as outside the range of adaptation, where it should be considered as a promising adaptation strategy. (NETHERLANDS)	Clear findings on both transformation and transformational adaptation are now provided in C-2.
1760	61812	SPM	18	30	18	35	This entire paragraph is incomprehensible and needs clarification and further development. Are we talking about changing our lifestyles? Our welfare? What kind of paradigms are we talking about? Growth? Please include a clearer statement on transformation. Climate-resilient pathways and transformations, and links to sustainable development, are much clearer in the Technical Summary (p. 56-57) with clear messages for policy makers which could be included here. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	More specific context is now provided in C-2 for findings on transformation.
1761	61943	SPM	18	30	18	35	As above (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	A finding on challenges is now included in C-2.
1762	63992	SPM	18	30	18	35	What is understood by "transformative change" and "transformational adaptation"? Please explain the difference or use the same wording. (GERMANY)	Different types of transformational adaptation are now described in C-2. The phrase transformative change is no longer used.
1763	68464	SPM	18	30	18	35	Forced, large scale transformations can be very dangerous because they tend to be myopic. Take a couple of decades to learn and allow others to learn. Respect the democratic process. People tend to learn the hard way (through disasters), but bypassing democracy is worse because it erodes trust and social capital. (NETHERLANDS)	A finding on challenges is now included in C-2.
1764	68465	SPM	18	30	18	35	Indicating statement as "high confidence" does not reflect the discussion in the literature. Discussion in the literature also includes warnings and concerns about deliberately created transformations. E.g.: Meadowcroft, M., 2009, What about the politics? Sustainable development, transition management, and long-term energy transitions. Policy Sciences, vol. 42, iss. 4, pp 323-340. E.g.: Smith, A. and Stirling, A., 2010, The politics of social-ecological resilience and sustainable socio-technical transitions. Ecology & Society, vol. 15, iss. 1, art. 11. E.g.: Voss, J.-P., Bornemann, B., 2011, The politics of reflexive governance: challenges for designing adaptive management and transition management. Ecology & Society, vol. 16, iss. 2, art. 9. (NETHERLANDS)	A finding on challenges is now included in C-2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1765	62474	SPM	18	31	18	31	There is a need to define transformational change, the sentence states that transformation can open or close policy spaces. What does that mean? This is a loaded statement and of little relevance to policy makers. This whole section on adaptation limits is very generic. (INDIA)	The terms transformative change and policy spaces are no longer used in C-2.
1766	68466	SPM	18	31	18	35	The statements in this subheading (i.e. "Transformation in wider political .... To global sustainability" come from section 20.5, but they are not explicitly mentioned (in the same form) in the Executive Summary of Chapter 20. Please correct the ExSum of Chapter 20. (NETHERLANDS)	Traceability of all statements to underlying assessment across chapters has now been ensured.
1767	57711	SPM	19	0	0	0	Table SPM.1 There is no information about climate change impacts on human systems in Asia? Is this really so that there is no any knowledge/studies about this? (Anne Kasurinen, University of Eastern Finland)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1768	58826	SPM	19	0	0	0	Effects of freshwater in Europe is sparse compared to what listed in chapters 3 (e.g. pages 2-3) and 23 (pages 2-3) (Katri Rankinen, Finnish Environment Institute)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1769	58833	SPM	19	0	0	0	TABLE SPM1 We suggest including some of the findings of Chapter 7 on food security implications of climate change in Africa and Asia. For example, we recommend mentioning that climate variability has already affected food production in parts of Africa and Asia; that climate variability has affected availability of key resources such as land and water; that climate variability and climate extremes have already affected livelihoods and food security in these continents; and that climate change may be linked to food price volatility. (Carlo Scaramella, World Food Programme)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1770	59793	SPM	19	0	0	0	Australasia - marine - check that phytoplankton 'growth rate and biomass declines' is correct and should not refer to 'increases'. (AUSTRALIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1771	61813	SPM	19	0	0	0	Table SPM.1: In the row "Europe", column "Freshwater resources & systems", the following entries should be added (based on the EEA Report No 12/2012): Warming of rivers and lakes; decline in late-season snow cover; permafrost warming. In the column "Coastal & marine systems", reference to the time period 1958-2005 should be extended to 2009 (based on the same reference). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1772	62082	SPM	19	0	0	0	Table SPM.1. Having a different box for "human systems" goes counter to the entire thinking of human-environment coupled systems that is present in the AR. One possibility to recognize that the systems are coupled is to include the direct impacts on humans as part of the impacts on specific ecosystems in the table. Another way would be to re-name the box as human-environment coupled systems. It also seems crucial to me to mention (somewhere) in or around the Table that these are studied impacts that have already occurred; future impacts and non-assessed impacts are therefore not included and as a result the impacts in this table are likely under-estimated. (Joann de Zegher, Stanford University)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1773	62475	SPM	19	0	0	0	Section 18.6-18.9: Attribution of melting of Glaciers in Himalayas indicates high confidence. I wonder if the conclusion is derived from sufficient peer-reviewed literature. Similar concern stems out from the comment about the role of climate change in degradation of surface water in parts of Asia. Asia being a huge area, how much of it does the 'parts' cover? Moreover, the degradation may also be due to industrial pollution as well. I must say that I do not have access to the chapters such as 3, which have been cited here. (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1774	65370	SPM	19	0	0	0	Table SPM.1: It is noted that for Asia no examples for impacts attributed to climate change for human systems have been included. It is suggested to fill this gap or to state somewhere in the report the need for further research. (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1775	65883	SPM	19	0	0	0	Table SPM.1, Europe row, no mention to droughts in the third column, despite relevant information exists in cap 18, pag 13, line 18 for Southern Europe and the Mediterranean. It is suggested to include this information (SPAIN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1776	65884	SPM	19	0	0	0	Table SPM.1, Central and South America; are there no observed impacts on terrestrial ecosystem, drought and wildfire? (SPAIN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1777	67975	SPM	19	0	0	0	"Shift from sardines ( <i>Sardinops melanostictus</i> ) to anchovies ( <i>Engraulis japonicus</i> ) in the Sea of Japan observed between 1993 and 2003" should be amended to "Shift from sardines ( <i>Sardinops melanostictus</i> ) to anchovies ( <i>Engraulis japonicus</i> ) in the western North Pacific observed between 1993 and 2003" in the second line of column "Phenomenon" of Table 6-7, in order to keep consistency with description in the quoted document. (See Chapter 6 P.99, L.27-28) (JAPAN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1778	68467	SPM	19	0	0	0	The only impact mentioned for Europe is the stagnation of wheat yields due to climate. It may however be argued whether climate change is the reason. Prices of wheat decreased until 2008, and wheat became less important relative to other crops in rotations. It may be the case for some countries, but a study accepted with major revisions in Field Crops Research (Rijk, B., M. van Ittersum, J. Withagen, 2013. Genetic progress in Dutch crop yields) shows that in the Netherlands genetic progress still increases linearly as in the past for all major crops. Actual yields do not keep up, so yield gaps increase. Yields are less limited by climatic conditions, but more by management factors. For example, in the Netherlands wheat is often grown after sugar beet. As sugar beet can be harvested later than in the past, to obtain higher yields, farmers do this. This implies wheat needs to be sown later than optimal, but as revenues for sugar beet are higher than for wheat, they prefer higher sugar beet yields. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1779	68468	SPM	19	0	0	0	Consider extending the table by adding some extra issues, e.g. (medium confidence) There will be a loss of agricultural land due to sea level rise and intrusion. The increase of temperature can create a favorable condition for tropical horticultural crops but detrimental to cereals. (for Human System (last column)) Outbreak of vector borne diseases in Asia and Africa. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1780	68469	SPM	19	0	0	0	Table SPM.1, bottom row: The first sentence of the coastal and marine system cell needs to be replaced by "Mass bleaching of corals in Great Barrier Reef, changes in coral calcification rates (high confidence), and changes in coral disease dynamics (medium confidence)". See page 89 in Chapter 25. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1781	68470	SPM	19	0	0	0	Table SPM.1, bottom row: snow depth actually declined at three out of four sites, not all four sites. Confidence for this is high, not medium. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1782	68471	SPM	19	0	0	0	Table SPM.1, bottom row: reference should be Hennessy et al 2008b, not Hennessy et al 2008. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1783	68472	SPM	19	0	0	0	Table SPM.1, bottom row: No evidence presented in Chapter 25 for changes in flowering or bird breeding times. This information is presented in chapter 18, Table 18-7, page 89. Please include Table 18-7 as a reference, next to Table 25-3 (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1784	68473	SPM	19	0	0	0	Table SPM.1, bottom row, Terrestrial Ecosystems, etc. for Australasia: The categories used to analyse changes in the Chapter are different to those used here (Chapter: morphology, geographic distribution, life cycles, marine productivity, vegetation change, freshwater communities, disease, coral reefs; SPM: genetics, growth distribution, & phenology) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1785	68474	SPM	19	0	0	0	Table SPM.1, bottom row, Coastal & Marine Systems for Australasia: Please add reference to Table 18.8 in reference list for Coastal & Marine Systems to references, since it renders information on range shifts in near shore fishes, recruitment declines of abalone or southward expansion of some tropical seabirds. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1786	68475	SPM	19	0	0	0	Table SPM.1, bottom row: Chapter 25 also cites decreases in fish growth rates (see page 88); SPM cites only increasing fish growth rates (like Table 18.8) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1787	68476	SPM	19	0	0	0	Table SPM.1: For the Region: Europe column Coastal & Marine Systems one could e.g. add Chapter 30.6.2.1.3 as a reference in the list with references. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1788	68477	SPM	19	0	0	0	Table SPM1. Europe/Coastal & Marine System. In our opinion the "Decreasing abundance of eelpout in Wadden Sea" is not the type of crucial information for decision makers. It is too specific. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1789	70294	SPM	19	0	0	0	Table 1. The entry for Australasia/Freshwater resources & systems needs to be updated: 1) Add reference to the relevant main text section. 2) The wording "Significant change..." is confusing in relation to the grading "medium confidence". Both terms are related to the same underlying concept of 'strength of the signal', and if "significance" is interpreted in its statistical sense it carry its own formal assessment of confidence level (which is not consistent with "medium confidence"). Suggestion: change "Significant" to "Substantial" or similar. (SWEDEN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1790	70619	SPM	19	0	0	0	Table SPM.1: In the 'Australasia' row, the relative applicability of statements to NZ and Australia is not clear. (NEW ZEALAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1791	70620	SPM	19	0	0	0	Table SPM.1: In the 'Australasia' row, there is no reference to NZ data on snow depth. (NEW ZEALAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1792	71508	SPM	19	0	0	0	Table SPM1: In the row of the Table SPM1, dedicated to Africa, with regards to the "Coastal and Systems" column, there is no information and comments in this area for Africa... Why? (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1793	78463	SPM	19	0	0	0	Table SPM.1, caption: "attributed to climate change" should have an adjective in the middle indicating that it is not necessarily anthropogenic climate change, such as "observed" or "regional". (Dáithí Stone, University of Cape Town)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1794	79291	SPM	19	0	0	0	Table SPM.1 could be clearer - could the impacts be separated out into medium and/or high confidence, rather than by asteriks? There is a lot of useful text, but not convinced it is presented in most useful manner to policymakers. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1795	79863	SPM	19	0	0	0	Table SPM1. What do empty cells mean? No data? Not occurring? Please explain in figure text. (NORWAY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1796	79864	SPM	19	0	0	0	Table SPM 1. Last Row about Australia. We expected some observations regarding drought in Australia, ref the example on SPM page 23. (NORWAY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1797	79865	SPM	19	0	0	0	Table SPM1: which time period are the observations from? Particularly important given the definition of climate change that is used in the report. (NORWAY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1798	62410	SPM	19	0	3	0	Table SPM-I: In context of Coastal and marine system of African region, no information is provided (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1799	62411	SPM	19	0	3	0	Table SPM-I: The impacts of Climate Change on the coastal line of Africa may be given. (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1800	62412	SPM	19	0	3	0	Table SPM-I: "Decline in fruit bearing trees" should be included under Terrestrial Ecosystem (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1801	62413	SPM	19	0	3	0	Table SPM-I: Human system needs to be included under Asian region (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1802	62414	SPM	19	0	3	0	Table SPM-I: Water and human system needs explanation for Small Island region (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1803	62415	SPM	19	0	3	0	Table SPM-I: It does not provide significant island examples. (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1804	59794	SPM	19	0	19	0	Table SPM.1 Research shows that Australia's rainfall patterns have changed, and are at least partly attributed to climate change - in particular a drying of southern Australia, and a significant drought affecting south eastern Australia during 1997-2009. This is reflected in the Australasia chapter (Ch 25) - and suggest this is also reflected in Table SPM.1 under the observed changes in 'freshwater resources and ecosystems', along with changes in 'terrestrial ecosystems, drought and wildfire' sections. (AUSTRALIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1805	60263	SPM	19	0	19	0	Table SPM.1 - 'Wine-grape maturation has advanced in recent decades...' - Does advance mean in become earlier, increased in speed, or matured further than normal? (AUSTRALIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1806	64259	SPM	19	0	19	0	Row above Europe: Sentence is too narrow in scope. Authors should change "Retreating glaciers in the Alps" --> "Retreating glaciers in the Alps, Scandinavia and Iceland". The glacier retreat in the Nordic countries is well documented and extensive. See for instance a) Chapter 4 in the upcoming WGI IPCC report, especially figure 4.9. b) Bjornsson H. and Palsson F. (2008) Icelandic Glaciers, JÖKULL No. 58, 2008 p. 365 – 383. c) Blunden, J., and D. S. Arndt, Eds., 2012: State of the Climate in 2011. Bull. Amer. Meteor. Soc., 93 (7), S1–S264 and d) Andreassen, L. M.;B. Kjølmoen, A. Rasmussen, K. Melvold, Ø. Nordli, (2012) Langfjordjøkelen, a rapidly shrinking glacier in northern Norway, Journal of Glaciology, vol. 58, issue 209, pp. 581-593 (ICELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1807	63994	SPM	19	0	20	0	Table SPM.1: This table is very helpful in principle, but we have some general comments and suggestions for improvements: 1) The selection in this table seems somewhat arbitrary, leaving out observed impacts of importance to inform policy makers, and some of the gaps are not self-explaining. 2) The limitation on impacts with medium and high confidence might exclude the most relevant (i.e. highest consequences) impacts. From a policy perspective impacts with low confidence but severe consequences are also important. This applies to both observed - especially if observed impacts are projected to increase/become more severe in the future - and projected impacts. By limiting the selection to attribution statements with higher confidence, most observed impacts on human systems, and other impacts in complex multi-driver systems are excluded. In particular for the human systems, this decision should be revisited. 3) Given the increasing complexity on the one hand, and the interest to policymakers on the other, a separate representation of the human systems impacts with some accompanying lines may be appropriate. It is suggested to add at least findings for human health of high and medium confidence to column "Human System" (see regional example TS p 16 l 28-40). 4) The confidence of attributing the occurrence of extreme weather events is rather low throughout the continents. Also, impacts of sea-level rise are not mentioned. Most of the impacts attributable to cc are impacts in polar and alpine regions and vegetation shifts in temperate climates. The lack of attributable impacts in particular in Africa, Latin America&Caribbean, Asia and the Pacific part of Australasia is striking. As a consequence, UNFCCC by its mandate mainly deals with countries where changes are caused by multiple stressors and cannot be confidently attributed to climate change. 5) Please add references and uncertainties to ALL statements. 6) In addition to marking the level of confidence by one or two stars, different colours could be used to help the reader to easily differentiate. (GERMANY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1808	66079	SPM	19	0	20	0	Table SPM. 1: No sources [links to chapters] mentioned on the right-hand column on Human systems. (FINLAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1809	70293	SPM	19	0	20	0	Table 1. Several of the examples in this Table (Africa/Sahel drought, Europe/burnt forest are, Australasia/wine-grape maturation, ....) are based on comparatively short observational time-series in relation to the time-scales of underlying processes. For example some species populations exhibit substantial natural variability in abundance, partly related to decadal-scale natural variability in the ecological system and partly because of impacts from natural climate variability (NAO, ENSO, ...), as well as changes to other external (anthropogenic) pressures. For a reader having the relevant expertise it is clear that this is one of the main factors the IPCC author teams assess when assigning level of confidence in this report, i.e. that that the assigned confidence provide a measure of the climate change impact above and beyond what can be explained by these other factors. However, as this is indeed a Summary for Policy-Makers, it would be helpful and relevant to state this upfront so as to reduce unwarranted criticism for mixing up climate change impact and natural variability. ONE or two sentences here in the Table caption or in Box SPM.2 (SWEDEN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1810	78086	SPM	19	0	20	0	Table SPM1: while in the body of the text both confidence and evidence levels are mentioned in brackets, in Table SPM1 only confidence is mentioned, this does not help the reader spot relative importance and urgency between issues (Philippe MacClenahan, Synergies Environnement)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1811	79293	SPM	19	0	20	0	Table SPM1: the confidence "medium" and "high" are not defined. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1812	79294	SPM	19	0	20	0	Table SPM1: the method to distinguish between med and high confidence, using one or two asterisks, is not very clear to the reader. Suggest using colour coding or otherwise re-grouping the table, to make this more readily apparent. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1813	79295	SPM	19	0	20	0	SPM1 table. Would be useful if this could give a comparison to AR4 (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1814	79296	SPM	19	0	20	0	Table SPM1 - needs an additional column on human health impacts (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1815	61814	SPM	19	1	0	0	In Table SPM.1, the use of medium or high confidence (rather than very high) seems unnecessarily cautious in many/most cases. Thus 'climate change' (as defined in box SPM.1) is the only plausible explanation for most of the specific impacts given in Table SPM.1 (since, unlike for UNFCCC, attribution to human-driven forcing does not have to be demonstrated). The only rationale for use of 'medium' confidence would be if the data regarding the impacts are themselves subject to dispute or alternative interpretations. For example, a statement such as "increased drought in the Sahel since 1970, partially wetter conditions since 1990" is (we consider) factual, and not in doubt; in this case the direct climatic data is well-supported by indirect data, eg remote sensing of vegetation cover and crop yields. Or is the issue the distinction between 'climate change' (involving persistence for an 'extended period' - decades?) and shorter-term 'natural variability'; i.e. the length of the data set? If that is the case, then Table SPM.1 should include additional information on the time period (years) that has shown the identified impact. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1816	62660	SPM	19	1	0	0	Table SPM1. Comment: Little mention is made on impact on freshwater resources and ground-water lens. See i) Ch29 P8 line 22-25 for impact on freshwater lens of Caribbean Carbonate Island of sea level rise and reduced rainfall; ii) P8 line 52ff - freshwater supply in small islands is affected by the limited storage capacities of their water sheds and minimal run-off (thus reduced rainfall has a large impact); iii) p9 lines 26-27 – wave overtopping and wash will become more frequent with sea level rise and will impact freshwater lenses dramatically (see line 28 – the Pukapuka Atoll example). Generally, the impact of climate change on the freshwater resources of small islands is well known from the previous AR and should be included in this table more unambiguously (Anirudh Singh, University of the South Pacific)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1817	79290	SPM	19	1	19	1	Table SPM. 1, in the 'Europe' section on 'Coastal and Marine' the information on cod and eelpout seems very specific, given the high-level nature of the document. The shift in cod distribution (given a high confidence score) is actually quite controversial, and there is much argument about whether the shift is due to climate or depletion by the fishery. There is huge literature base on European fish distribution shifts, so the inclusion of these specific studies seems very narrow. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1818	63995	SPM	19	1	20	0	Table SPM.1: specific comments: 1. row (Africa): only mention the fruit-bearing trees? second column (Freshwater Resources & Systems) could also include the following examples: Reduced river inflows from reduced runoff and evaporative water loss (Ch 22 P 15 L 43-54); declining water levels in freshwaters (Ch 22, P 16 L 2-7); 2. row (EUROPE): column terrestrial ecosystems: please add plant species range shifts in European mountainous regions to higher altitudes (see Ch 23.6.4 P 32) and changes in species interactions (see Ch 23.6.4 P 33). 3. row (Asia) fifth column (Human Systems) could also include the following examples: Weather and climate-related disasters with high economic losses Ch 24, P 29 L 39 to P 30 L 5); observed health impacts related to climate-related disasters, such as floods (Ch 24, P 34, L 10-17), heat (Ch 24, P 34 L 19-26), drought (Ch 24, P 34, L 28-34), water and vector borne diseases (Ch 24, P 34 L 36 to P 35 L 7); effects on fishery or infrastructure? 5. row (N-America) human systems: The statement is very general. Is it possible to be any more specific or give an example or two? 6. row (South and central America) ) Please add ecosystem information, and one would expect a sentence on the Amazonian rainforest). 7. row (Polar Regions) The Antarctic gets a raw deal in this section. Problems are the same as in the Arctic: Melting of glaciers and shelf-ice, less sea ice during the summer. The decline of entry barriers leads to more human presence in the region. It is not only non-native plants which pose a threat to the local flora. The introduction of non-native animals like rodents is also a big problem. Additionally pathogens can endanger bird colonies. Animals that need the sea-ice - e.g. for breeding are endangered by the progressive loss of their natural habitat. Please add some examples, e.g. from [28.2] as well as TS (P 8 L 46-49 and P 10 L13-14) 8. row (Small Islands), fifth column (Human Systems) could also include the following examples: Increasing incidence of malaria and dengue fever (Ch 29, P 11 L 34-43). (GERMANY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1819	79292	SPM	19	1	20	1	Table SPM1: there are several blank cells in the table; could they be populated with examples? Especially for Small Island state row; SIS are accepted as fairly vulnerable, but few observed impacts are recorded here. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1820	65017	SPM	20	0	0	0	Table SPM 1 North America: Should glacial retreat be mentioned? (George Hunt, University of Washington)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1821	65018	SPM	20	0	0	0	Table SPM 1 North America and Polar Regions: Should increased over-winter of pest insects and the potential for devastation of forests be mentioned? (George Hunt, University of Washington)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1822	65371	SPM	20	0	0	0	Table SPM.1: It is noted that for Central and South America no examples for impacts attributed to climate change for terrestrial ecosystems have been included. It is suggested to fill this gap or to state somewhere in the report the need for further research. (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1823	65372	SPM	20	0	0	0	Table SPM.1: It is noted that for Small Islands no examples for impacts attributed to climate change for freshwater resources and human systems have been included. It is suggested to fill this gap or to state somewhere in the report the need for further research. (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1824	66382	SPM	20	0	0	0	Table SPM1, line 3, column 3, When mentioning "Retreating snow-bed ecosystems & tussock tundra...& less precipitation in the form of snow" it is important to clarify that this is for the Arctic, since in the Antarctic where such conditions occur, such as the northern Antarctic Peninsula, snowfall is expected to increase with rather unknown impacts. (Carla Andreia Silva Mora, University of Lisbon)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1825	68478	SPM	20	0	0	0	Table SPM.1. Please, to consider if section 26.4.2 could be eliminate of references in Terrestrial Ecosystems, Drought, & Wildfire section. Despite that in this section is clear that distribution of cold and hot water fish (page 17, line 52-53), and that the abundance and productivity of Salmon (pages 18, 28-29) are changing by climate change. There are no studies that support strongly "the shifts in the species distribution in northward latitude for these taxa". (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1826	68479	SPM	20	0	0	0	in table SPM.1, polar regions, statement "Reduction of arctic sea ice cover" is not fully supported by the paper by Grebmeyer, no clear data (SWIPA 2011?) Put SWIPA (2011) in reference list and tables as it is a key document. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1827	68480	SPM	20	0	0	0	in table SPM.1, polar regions, statement "Reduction of glacier ice volume" is not traced back (maybe supported by WGI AR5 and SWIPA 2011) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1828	68481	SPM	20	0	0	0	in table SPM.1, polar regions, the statement of the occurrence of new lakes is not supported by literature (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1829	68482	SPM	20	0	0	0	in table SPM1, increasing plant species could not be traced back to Chapter 28 (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1830	68483	SPM	20	0	0	0	in table SPM1, statement of increased drought in arctic deserts is not well supported (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1831	68484	SPM	20	0	0	0	in table SPM1, statement "Shrinking of glaciers...." is an important observed impact but is not supported by chapter 28 (hopefully in the other references) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1832	68485	SPM	20	0	0	0	in table SPM1, reduced thickness of foraminifera shells. Why only data for southern ocean and what about other organisms? (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1833	68486	SPM	20	0	0	0	Atkinson and Siegel (2009) do not conclude a decline of 30% (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1834	68487	SPM	20	0	0	0	In Table SPM 1. Region: Polar Regions: 'Impact on livelihoods of Arctic indigenous peoples' [18.4.5, Box 18-5] is mentioned in the last column with title 'Human Systems'. This reference indication is however incorrect and should be [18.4.7, Table 18-5] instead of [18.4.5, Box 18-5], since there is no mention of impact on livelihoods of Arctic indigenous peoples in section 18.4.5 (this should be section 18.4.7) and Box 18-5 discusses how indigenous Arctic peoples perceive climate change impacts and does not specifically address the impacts of climate change on their livelihoods (see Table 18-5 for this, at page 85 of chapter 18) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1835	68488	SPM	20	0	0	0	Table SPM1 row7 col5: add ", dengue and yellow fever" to the sentence " increase in frequency and extension of malaria" (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1836	68489	SPM	20	0	0	0	table SPM 1, Row 7, Column 2: did not find "Changed discharge patterns in rivers in the Western Andes" rather found tropical Andes (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1837	70680	SPM	20	0	0	0	Table SPM.1, page 2, line 3 (Polar regions), column 2: table mentions that lakes will be created in areas of formerly frozen peat. This is not correct. Instead of frozen peat, should be frozen ground (or permafrost). (Goncalo Vieira, University of Lisbon)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1838	71509	SPM	20	0	0	0	Table SPM1: In the row of the Table SPM1, dedicated to Central & South America, with regards to the "Terrestrial Ecosystems, Drought & Wildfire" column, there is no information and comments in this area... Why? It should be completed! (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1839	76204	SPM	20	0	0	0	Table SPM.1 Comments - Coverage for SIDS is minimal - only birds on Mauritius and coral bleaching mentioned. Terrestrial impacts on mangroves, migration issues for upland vegetation in island setting bear mentioning. Impacts on fisheries and agriculture could be substantial as well as those for tourism. Changes in precipitation patterns could have significant impacts on water supply turning wet islands into dry islands w/ major impacts on agriculture. Public health issues and invasive species are issues on small islands as in some of the other regions. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1840	76205	SPM	20	0	0	0	Table SPM.1 Comments - Recommend consideration of additional entries for Small Islands based on additional literature identified by reviewers of Chapter 29. Also concur with Reviewer/User #14356 regarding this Table. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1841	79866	SPM	20	0	0	0	Table SPM1. First column, polar regions: "Decreasing Arctic sea ice cover in summer...". Please note that sea ice is not considered freshwater but sea water. (NORWAY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1842	67976	SPM	20	0	20	0	In Table SPM.1, the term "foraminifera shells" should be replaced with a formal academic term "foraminiferal shells". (JAPAN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1843	79867	SPM	20	0	20	0	Table SPM 1. Next ot last row, Polar region, two first statements: We'd expect that there are sufficient observations about the sea ice and snow cover for this to be a statement with hifh confidence. (NORWAY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1844	71025	SPM	20	1	0	0	The term "phenology changes" in the "North American" "Terrestrial" box does not adequately identify the impact. Phenology is too broad and the size and impact of the change is not defined. (CANADA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1845	62476	SPM	21	0	0	0	Any evidence on exposure and vulnerability of Sunderbans, which is the largest mangrove and also a UNESCO heritage site. (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1846	62477	SPM	21	0	0	0	This is a very large table covering 4 pages and tries to combine a lot of information, but when you read the actual text in the box, there is not much a policy maker can get from 2-3 lines per sector in the continent. For e.g. If you consider, terrestrial ecosystems for Asian continent, the first sentence is obvious. Second sentence is also obvious. The third sentence deals with Northern and High-altitude areas. There is not a single sentence on the risks faced by the tropical forests of Asia covering hundreds of millions of hectares. (INDIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1847	65019	SPM	21	0	0	0	Table SPM 2, header: what is meant by vulnerability at the scale of risk management? What is the scale of risk management? (George Hunt, University of Washington)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1848	65457	SPM	21	0	0	0	Table SPM.2, confusing: Why is climate information about the North Atlantic (see section: climate information at the regional scale) needed for the case of mangrove restoration? (Nicole Glanemann, University of Hamburg)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1849	67978	SPM	21	0	0	0	Table SPM.2: It is doubtful whether as many as three pages should be allocated in the SPM to cover detailed examples of adaptation experience. If the table has been included with the intention of illustrating frameworks of adaptation, then such objectives can be achieved using more simple figures. An abridged version of Table TS 3., if comparisons among different continents are intended, then an example explicitly from Asia should be included. (JAPAN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1850	68490	SPM	21	0	0	0	Sec: Mangrove.../..Global scale: Reference to Chapter 13 (sea level rise) in AR5 WG1 is missing (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1851	68491	SPM	21	0	0	0	Citations in the tables to Box 14.2, 14.3, but these two boxes actually do not exist in Chapter 14. Idem Table page 22. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1852	68492	SPM	21	0	0	0	In Table SPM.2 under the BROADER CONTEXT this statement 'Mangrove bioshields created from exotic species can detrimentally impact native ecosystems.' is contradictory with 29.7.2 (page 29 line 12 to 13). (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1853	70621	SPM	21	0	0	0	Table SPM.2: There are three places in the table where the phrase is used: "Likely increase in the number of heavy precipitation events in more regions than the number has decreased since 1950". This does not make sense and suspect that there are words missing e.g. should it say "Likely increase in the number of heavy precipitation events in more regions than those where the number has decreased since 1950"? (NEW ZEALAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1854	70784	SPM	21	0	0	0	*Observation: The illustrative table would be strengthened by the inclusion of an example of the adaptive experience of indigenous peoples, or those living traditional livelihoods, perhaps using an Arctic, Asian or island case for regional balance? Examples may be drawn from Nakashima et al (2012), such as the reindeer herding example on p55, or Altieri and Nicholls (in press, among others. *References: Altieri M and Nicholls CI (in press) The adaptation and mitigation potential of traditional agriculture in a changing climate in Journal of Climatic Change Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples   Nakashima DK, Galloway McLean K, Thulstrup, HD, Ramos Castillo, A and Rubis, JT. 2012. Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. UNESCO/UNU-IAS, Paris/Darwin. ISBN: 9789230010683/9780980708486.. Downloadable from: <a href="http://www.ipmpcc.org/wp-content/uploads/2012/06/Weathering-Uncertainty_FINAL_12-6-2012.pdf">http://www.ipmpcc.org/wp-content/uploads/2012/06/Weathering-Uncertainty_FINAL_12-6-2012.pdf</a> (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1855	71026	SPM	21	0	0	0	Table SPM.2: The heading could be improved to communicate the messages more easily. E.g., Description (of what)? Broader context (of what)? (CANADA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1856	76206	SPM	21	0	0	0	Table SPM.2 Comments - Mangrove restoration is an important adaptation measure for small island states stabilizing shorelines and providing buffers from coastal storms. The discussion is generalized w/ no specific reference to SIDS. All of the case studies referenced are for mainland countries. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1857	76207	SPM	21	0	0	0	Table SPM.2 Comments - The last bullet in broader context is confusing - what are "mangrove bioshields?" It would be useful if this example also included mention of the multiple benefits provided by mangrove ecosystems (in addition to coastal protection) - such as habitat for juvenile fishes, etc. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1858	76208	SPM	21	0	0	0	Table SPM-2 Comments - Under Climate information at the regional scale, check statement for possible contradiction. How would one reconcile a stormier North Atlantic with fewer Northern Hemisphere storms? (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1859	76209	SPM	21	0	0	0	Table SPM-2 Comments - Under Description, add "Bangladesh." (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1860	76210	SPM	21	0	0	0	Table SPM-2 Comments - Under Exposure and vulnerability, add "Loss of mangrove and salt marshes". (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1861	76211	SPM	21	0	0	0	Table SPM-2 Comments - Under Mangrove restoration, add "and salt marsh". Under Exposure and vulnerability, add "Loss of mangrove and salt marshes". (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1862	78261	SPM	21	0	0	0	Table SPM.2 contains some of the most interesting information in the SPM; these adaptation case examples can be strengthened through some organizational improvements. Consider moving the "Description" section for each case example to the top of the section. For example: "Mangrove restoration to reduce flood risks...." would have the "Description: Mangrove restoration and rehabilitation..." located directly below the title of this case. Under this flow, the concise case summary (i.e. the "Description") is provided first followed by "Exposure and vulnerability", and then "Climate Information at the Regional Scale", followed by the "Broader Context". (Shane Easter, Carnegie Institution of Washington )	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1863	78262	SPM	21	0	0	0	Consider omitting "Climate Information at the Global Scale" altogether as it contains occasionally redundant information across case examples (e.g. "Very likely decrease in the overall number of cold days and nights and increase in the overall number of warm days and nights, on the global scale between 1951 and 2010," is repeated in the Africa and Australasia case examples), and it does not work interactively with the Climate Information at the Regional Scale to enhance understanding of regional change within global context. An alternative to omitting the "Climate Information at the Global Scale" section would be to have a two column approach wherein the global context of a change is placed adjacent to the actual regional change (e.g. for Mangrove Restoration case example--First Column: Global Observation---Low confidence that any reported long-term changes in tropical cyclones are robust, Second Column: Regional Observation--For tropical cyclones observed over the satellite era, increases in the intensity of the strongest storms in the Atlantic appear robust. ). Paralleling Global observations/projections with Regional observations/projections could go a long way toward contextualizing the regional adaptation within global observational/projected changes. (Shane Easter, Carnegie Institution of Washington )	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1864	66031	SPM	21	0	21	0	Table SPM2. The fragment referred to the "Climate Information at the global scale" shows a little inconsistency that can drive to some misunderstandings. First it says that LIKELY the global frequency of cyclones will decrease or will remain constant, but afterwards it says that "more likely than not" an increase of the most intense cyclones will be produced in some basins (which?) (then, a decrease in some regions or a decrease of medium or non intense cyclones will be produced in other parts of the world). I think that it would be better to delete this sentence, or move it to the part "Climate Information at the regional scale", doing explicit reference to the basins for which this increase is expected. See also chapter 1, page 22, lines 46-48. (Maria-Carmen Llasat, University of Barcelona)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1865	67977	SPM	21	0	21	0	Table SPM.2: Mangrove restoration to reduce flood risks and protect shorelines from storm surge: CLIMATE INFORMATION AT THE REGIONAL SCALE: Projected: "In the North Atlantic and the EASTERN part of the North Pacific, the frequency of category 4/5 tropical cyclones is projected to increase" should be "In the North Atlantic and the WESTERN part of the North Pacific, the frequency of category 4/5 tropical cyclones is projected to increase." According to Box.14.2 Figure 1 (p. 14-191) and Figure TS.19 (p. TS-98) of WG1 SOD, projected changes in Category 4-5 TC frequency is assessed for Global, North Atlantic and Western North Pacific, and not for Eastern North Pacific due to insufficient data. (JAPAN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1866	63996	SPM	21	0	23	0	Table SPM.2: This table seems to be quite unbalanced because of the represented and especially the not-represented sectors (such as infrastructure). According to which criteria have these examples been chosen? Currently the table is confusing, please improve structure. E.g., in comparison to TS table TS 3., Table SPM 2 does not cover the items "early warning systems for heat", "community based adaptation and traditional practices in small island context" and "index-based insurance for agriculture in Africa". It is suggested to include these aspects in order to illustrate the variety of possible approaches. In addition, confidence levels should be added to each of the statements (e.g., fourth example ("Relocation of agricultural industries in Australia"): confidence levels are missing for "Freshwater resources projected to decline ...", and for "Observed: increase in globally averaged near surface temperature since 1990..." and "Regional to global-scale projections of soil moisture and drought..." under global scale.; Europe/regional scale: Please add levels of confidence for "Isostasy and decreasing sea level in Scandinavia" and "Annual increase of intense precipitation days over Mediterranean region"; Europe: "Isostasy and decreasing sea level in Scandinavia"). (GERMANY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1867	65887	SPM	21	0	23	0	Table SPM.2, Examples of adaptation experiences: there is a bias to structural experiences in different sectors, missing some cases in the institutional or social field. It is suggested to include some case study of a regional approach to the adaptation action, and the EU and its recently adopted European Adaptation Strategy ( <a href="http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm">http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm</a> ) could be a clear one, with a mention of its adaptation platform Climate-Adapt ( <a href="http://climate-adapt.eea.europa.eu/">http://climate-adapt.eea.europa.eu/</a> ) and the coordination with the national adaptation actions of the 27 Member States (SPAIN)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.



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1868	61815	SPM	21	1	0	0	Table 2: examples quite arbitrary - suggest to leave it for the TS rather than the SPM (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1869	63997	SPM	21	1	23	0	Table SPM.2: specific comments 1. example: (mangrove restoration): general risks and threats for mangrove forests, in particular conversion into shrimp farms should be mentioned in order to avoid non-sustainable adaptation action. 2. example (Farming practices in Africa, such as zai and integration of trees into annual cropping systems): it should be made clear to the reader how the described climatic changes (observed and projected) exacerbate the problem of degraded land and soil erosion. The link is not clearly presented. One or two sentences could be added, explaining that high temperatures may reduce yield and contribute to soil erosion and low soil water holding capacity and that extreme precipitation events also contribute to soil erosion. Further, I could not find Box 22-4 in Ch 22 (the box is referenced in this example). 3. example (Adaptive approaches to flood defense in Europe): please mention examples (from Europe) for "some countries". 4. example (Relocation of agricultural industries in Australia): Please add to CLIMATE INFORMATION AT THE REGIONAL SCALE/Observed: Mean temperature increase of 0.09°C per decade over Australia since 1911 (very high confidence) (Ch. 25, P83, Tab. 25-1) (GERMANY)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1870	58834	SPM	22	0	0	0	TABLE SPM2, Section on agricultural practices in Africa. Climate information at the regional scale. We recommend including some of the AR5 projections for precipitation (including heavy precipitation events and drought) for Africa. (Carlo Scaramella, World Food Programme)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1871	61816	SPM	22	0	0	0	Table SPM.2: In the blue part of the table, cell "Climate information at the regional scale", und point "Observed", the term "decreasing sea level in Scandinavia" should be changed to "decreasing sea level in *parts of* Scandinavia". (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1872	68493	SPM	22	0	0	0	Block Description Europe. For climate adaptation in the field of watersafety and freshwatersupply the Netherlands opt for an adaptive approach. This approach favors strategies that can relatively easily be delayed or accelerated and takes the short term ('avoid regret') measures that are necessary to keep long term options open that might be necessary in the far future. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1873	68494	SPM	22	0	0	0	Table SPM 2 - the lowest but one row (light blue; 'Description'): I do not recognize the costs of the Dutch plan (2.5 to 3.1 billion euro's). See table 23-3. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1874	68495	SPM	22	0	0	0	sea level rose in Europe except in Scandinavia. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1875	79297	SPM	22	0	0	0	Table SPM2: generally good. bottom section page 22 stands out - needs to be more generalised with anonymous examples of lessons relating to the exposure and vulnerability. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1876	63032	SPM	23	0	0	0	Table SPM-2: On page 23 in the section of the table headed "Climate information at the regional scale" an observed "Mean temperature invcrease of 0.9°C per decade over Australia since 1911" is reported. I assume this number should be 0.09°C per decade ? (I'm pretty sure that Australia has not warmed by 9°C degrees total over the past century!). (David Wratt, NIWA, New Zealand)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1877	65380	SPM	23	0	0	0	Table SPM.2: There is obviously a mistake in the figure of mean temparture increase per decade over Austrlaia since 1911. The correct value in chapter 25 is 0.09 degrees C per decade wherwas table SP.2 includes a figure of 0.9 degrees C per decade!!! (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1878	68496	SPM	23	0	0	0	Table SPM.2 In the section "Relocation of agriculture industries in Australia" of Table SPM.2, Confidence level of the claim "cool extremes rarer and hot extremes more frequent and intense over Australia and New Zealand" needs to be changed to high confidence. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

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1879	68497	SPM	23	0	0	0	Table SPM.2 In the section "Relocation of agriculture industries in Australia" of Table SPM.2, under 'Projected' sub-heading, fifth sentenced needs to be changed as follows: Increase in intensity of rare daily rainfall extremes (high confidence) and of short duration (sub-daily) extremes (medium confidence) in Australia and New Zealand" (see Table 25-1, 25.5.1). (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1880	68498	SPM	23	0	0	0	Table SPM.2 In the section "Relocation of agriculture industries in Australia" of Table SPM.2, level of confidence (high) needs to be added at the sentence beginning "Freshwater resources..." (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1881	68499	SPM	23	0	0	0	Table SPM.2 In the section "Relocation of agriculture industries in Australia" of Table SPM.2, Under the sub-heading broader context, the following text was not substantiated by evidence in Chapter 25; "with substantial changes required in transport chains, inputs, management, or growing contracts". (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1882	68500	SPM	23	0	0	0	Table SPM.2 Observed temperature change should be 0.09 degrees per decade, not 0.9. See Table 25.1 at page 83 of Chapter 25. (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1883	68501	SPM	23	0	0	0	Table SPM.2 Inconsistency in baseline timeframes reported i.e. it is in some cases (e.g. since 1911) but not in others (e.g. for cool extremes the timeframe is since 1950, but this is not cited) (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1884	68502	SPM	23	0	0	0	Table SPM.2 Re: observed heavy precipitation trends, the SPM neglects to mention trends that are mixed or not significant; these are reported in the Chapter 25 (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1885	68503	SPM	23	0	0	0	Table SPM.2 RE: projected extreme rainfall: not all measures of extreme rainfall from Chapter 25 are reported here in SPM (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1886	68504	SPM	23	0	0	0	Table SPM.2 Re: freshwater resources, SPM states "highly populated southeast", Chapter 25 states "far southeast" (NETHERLANDS)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1887	76212	SPM	23	0	0	0	Table SPM.2 Comments - Freshwater resources entry (under Regional Climate Information) is missing a confidence statement. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1888	76213	SPM	23	0	0	0	Table SPM.2 Comments - Observed mean temperature increase for Australia since 1911 should be 0.09, not 0.9, degrees C according to Chapter 25, p. 83. (UNITED STATES OF AMERICA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1889	57689	SPM	23	0	23	0	Climate information at the regional scale: observed mean temperature increase of 0.9C in total since 1911, not per decade. (Jouni Räisänen, University of Helsinki)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1890	59795	SPM	23	0	23	0	Table SPM.2: Table notes that Australia has observed a mean temperature increase of 0.9 degrees Celsius per decade since 1911. This should read 0.09 degrees Celsius per decade, as is noted in Chapter 25 (pg 83). (AUSTRALIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.
1891	59796	SPM	23	0	23	0	Table SPM.2: The section under 'Description' provides a very limited description of agricultural adaptation examples in Australia and could benefit from a few other examples. In addition, an example of agricultural adaptation in China is included, yet the table subheading refers only to Australia. (AUSTRALIA)	This table is no longer included in the summary for policymakers. This comment was considered by the writing team in revising the related table in the Technical Summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1892	58835	SPM	24	0	0	0	TABLE SPM3. We suggest including an example of specific measures to support food security and adaptation efforts. Suggested examples include: Improving agricultural yields; introduction of drought-resistant crop varieties; provision of weather-based index insurance; diversification of livelihoods; land rehabilitation; creation of livelihood assets such as water ponds to enhance the ability of households to manage climate-related risks; development of productive safety nets and social protection mechanisms that target the most food insecure populations. Chapter references: 7.5 and 22 (Carlo Scaramella, World Food Programme)	Many further examples relevant to food production and security have been included in the revised version of the table, now Table SPM.2.
1893	65388	SPM	24	0	0	0	Table SPM.3: It is noted that "early warning systems" is mentioned twice under examples (vulnerability reduction/disaster risk reduction and management) and Adaptation (technological). This is confusing unless some clarifying text is provided. (Klaus Radunsky, Umweltbundesamt)	Categories within the table, now Table SPM.2, are overlapping rather than discrete, and hence overlapping examples are to be expected.
1894	65389	SPM	24	0	0	0	Table SPM.3: The examples of transformation also contribute to risk reduction. Probably some further clarification of the relationship between disaster risk reduction and management, adaptation and transformation might be required, perhaps by an additional figure? An alternative might be to explain in the glossary the term "types of responses to climate change". (Klaus Radunsky, Umweltbundesamt)	Overlap has been further emphasized through the added descriptions in the 1st column (now in Table SPM.2). Figure 8 has also been added to the summary for policymakers to help further visualize entry points as assessed in the report.
1895	66138	SPM	24	0	0	0	Table 4 very detailed. Takes much time to understand, and still I have queries: eg what do the (sometimes one and sometimes 2) pairs of silos represent under col 4 title 'era and adaptn'? Are they the two eras? And why sometimes one only. (Martin Parry, Imperial College)	The framing of information presented within the table (now Table SPM.1) has been dramatically simplified and clarified. The specific issues raised here are no longer relevant.
1896	66139	SPM	24	0	0	0	What is meant by 'fully adapted', in the caption to Table 4? Some would argue that full adaptn means no impact/risk. Or is 'full' tailored to technical and financial capacity? (Martin Parry, Imperial College)	Improved descriptors are now used within Table SPM.1.
1897	66140	SPM	24	0	0	0	Suggest food/agric entries in the table have their own category, separated out from other human effects. (Martin Parry, Imperial College)	In the summary for policymakers, key risks are now presented for each region in Table SPM.1, rather than also being presented by sector.
1898	66141	SPM	24	0	0	0	Suggest this table has a text which draws out its main conclusions (Martin Parry, Imperial College)	The table (now Table SPM.1) has been substantially shortened, and it now more directly supports the text occurring in section B-3.
1899	67980	SPM	24	0	0	0	If the concepts of the ecosystem management approach and ecosystem based approach are different, the clarification is necessary. If not, the terms should be unified. (JAPAN)	Use of "ecosystem management" was intended to reflect the broader scope of this entry point. Please see Table SPM.2.
1900	68505	SPM	24	0	0	0	Importance of social policies and regulations emphasized in 14.3.2 seem to be overlooked in Table SPM 3 under Adaptation/Institutional/Government policies and programs row. We may need to put them on the table as are emphasized in chapter 14 of the report. (NETHERLANDS)	Social policies and regulations are now further emphasized throughout the table. Please see Table SPM.2.
1901	68506	SPM	24	0	0	0	Note that the idea of steering transformations that take place in these spheres of change (practical, political, personal) is based on 1 source (O'Brien and Sygna, forthcoming) according to p. 24 of Chapter 20 and fig 20-2. (NETHERLANDS)	Broader cross-referencing of supporting chapter sections is now provided. Please see Table SPM.2.
1902	68507	SPM	24	0	0	0	Check the referencing for the example on "Maintaining wetlands and urban green spaces" (SPMp24;TSp94); e.g. it appears NOT in box CC-EA in chapter 15, where it is only mentioned that RESTORATION of wetlands provide effective measure against storm-surge (p.37). Same for URBAN GREEN SPACES, not in ch.15 or in the mentioned references 8.3.3 or Box 8.1. (NETHERLANDS)	All chapter references have been checked and updated in the revision of the table. Please see Table SPM.2.
1903	70622	SPM	24	0	0	0	Table SPM.3: In the second cell down in the examples column, in the second line insert "food" before "storage". (NEW ZEALAND)	The broader wording has been retained. Please see Table SPM.2.
1904	79028	SPM	24	0	0	0	Table SPM.3: To indicate the overlap of and the interdependencies between categories and sub-categories, I suggest to replace the horizontal solid lines by hashed or dotted lines. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	Visual emphasis on subdivisions has been decreased. Please see Table SPM.2.
1905	58948	SPM	24	0	24	0	Table SPM.3. In Adaptation/Social/Educational section, after 'awareness raising' add "and specific guidance" (Kevin Ronan, CQUniversity Australia)	Substantially increased specificity has been included for examples in this entry cell. Please see Table SPM.2.
1906	58949	SPM	24	0	24	0	Table SPM 3. In Transformation/Spheres of change/Personal after 'responses.' add "Educate children." (Kevin Ronan, CQUniversity Australia)	The suggested example is overly specific compared to examples available in the supporting chapter sections. Please see Table SPM.2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1907	63998	SPM	24	0	24	0	Table SPM.3: Very interesting table, and the references to the underlying report are very useful. However, we have some general suggestions and comments: Caption: the terms used are not self-explaining, e.g. "entry point"; "strategies" is mentioned in the caption, but not in the text; it is not clear what kind of "category" is meant, the difference between "measures", "options" and "strategies" is not clear. Titles of columns and rows is not always systematical, they should all pertain to the same level of abstraction. Suggestions for adjustments of the titles: 1. column: the title "Entry Point" is not helpful, please modify (suggestions: "Field of Action", "Approach") • 2. row: delete "Vulnerability reduction through" so that it reads "Development and Planning"; • 5. row: change to "Transformation" and add: "of enabling framework". 2. column: the categories are not consistent, and the subcategories should follow a systematic and where possible be consistent for each higher level category. Please explain the concept of "measures", "options" and "strategies" in the first sub-column to the column "Examples"? • 1. row: change to "sectoral integration" • 2. row: change "Structural/concrete" into "Technical"; change "practical" into "societal"; "personal" into "individual" (GERMANY)	Clarity has been improved by dropping the word "measures" from the caption and by reducing the number of vertical columns within the table. Please see Table SPM.2.
1908	67979	SPM	24	0	24	0	Table SPM.3 "River improvement works, construction of reservoirs, enhancement of flood projection technique, promotion of safer ways of residing, retention of rain water run off, construction of drainage pumping stations" and "Amount of future sea level rise should be incorporated when renewing coastal facilities" should be added in appropriate lines. (JAPAN)	The number of examples has been very substantially increased based on examples available across the report. Please see Table SPM.2.
1909	78091	SPM	24	0	24	0	Table SPM3: the limit between "Vulnerability reduction" and "Adaptation" in column "Entry Point" is not visible; or do both entry points share all "Category" from "Forms of sectoral integration" to "Social" ? (Philippe MacClenahan, Synergies Environnement)	Intended divisions should now be clear. Please see Table SPM.2.
1910	78092	SPM	24	0	24	0	Are "Strategies, Measures, and options" information gathered in the "Examples" column? (Philippe MacClenahan, Synergies Environnement)	The word "measures" is no longer used, and strategies and options are presented within the examples entries. Please see Table SPM.2.
1911	80474	SPM	24	0	24	0	Given that in disaster risk management increasingly receives interest in climate adaptation, much more can and need to be said about this category and more examples should be brought in. (Reinhard Mechler, INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS)	Many more examples have been included in this cell and in others. Please see Table SPM.2.
1912	61817	SPM	24	1	0	0	Principles for effective adaptation should also summarise knowledge about costs, cost efficiency, sustainability, flexibility, no regret, etc. Just presenting all the options as equivalent examples of adaptation might not be useful. E.g. land-use planning versus sea walls or integrated coastal management versus beach nourishment would highlight the strengths and limitations of different options. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is intended to present specific examples to complement the high-level findings presented in section C-2. Please see Table SPM.2.
1913	61818	SPM	24	1	0	0	Table 3, 1st column suggests that transformation and vulnerability reduction through development and planning are not adaptation - confusing -> change (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The caption describes the entry points as overlapping and complementary. Please see Table SPM.2.
1914	61819	SPM	24	1	0	0	Table 3, "transformation" under all three types of "change of spheres" economic has to be added (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Economic examples are encompassed in the 3 spheres presented. Please see Table SPM.2.
1915	63999	SPM	24	1	24	0	Table SPM.3: specific comments on rows 2. row (category Human Development/Examples) " ..., improved access to..." add: "finance, self-help promotion"; 5. row (category Disaster risk reduction and management/Examples): add ", risk sharing approaches"; 6. row (category Ecosystem management/Examples) add "integrated water resources management"; 6. row (category Ecosystem management/Examples) add "maintaining and restoring degraded peatlands" (reason: climate change induced high air temperatures, low humidity and wind favor the already high inflammability of degraded peatlands. However, peatland fires represent a severe danger to local residents and foster climate change); 8. row (category Engineered/ Examples) add: ", terrassing"; 11. row (category Services/Examples) add: ", improved water supply"; 12. row (category: Economic/Examples) add: "savings". (GERMANY)	Many more examples are now included within the table, as can be supported by examples available on the underlying assessment. Please see Table SPM.2.
1916	58871	SPM	25	0	0	0	Table4: What is "ERA " standing for? Please explain in table heading (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	The word has been removed from the table legend. See Table SPM.1.
1917	60331	SPM	25	0	0	0	Table SPM.4: In the legend, climate change is associated with temperature (T), this is not true, delete it. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This has been removed in the revised approach taken. See Table SPM.1.
1918	60332	SPM	25	0	0	0	Table SPM.4: In the legend, climate change is associated with temperature (T), this is not true, delete it. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This has been removed in the revised approach taken. See Table SPM.1.
1919	60333	SPM	25	0	0	0	Table SPM.4: The significance of double bars with C and A is well explained in the legend. It is however not clear how to interpret an entry with 4 bars. Please provide an explanation. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	The ambiguity is now addressed in the new approach taken. See Table SPM.1.

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1920	61820	SPM	25	0	0	0	Table SPM.4: It is not clear what the acronym "ERA" stands for. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The word has been removed from the table legend. See Table SPM.1.
1921	61821	SPM	25	0	0	0	Table SPM.4: The legend suggests that each risk should be characterized by (only) one out of the six entries mentioned under "ERA & Adaptation Potential". However, several entries are characterized by two different entries, which is arather confusing. This inconsistency should be corrected and only one entry shown for each of the risks. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This ambiguity is now addressed in the new approach taken. See Table SPM.1.
1922	61822	SPM	25	0	0	0	Table SPM.4: It is rather surprising that the entry "Europe" / "Coastal & marine systems" does not include an assessment of the adaptation potential, considering that Section 23.3.1.1 contains substantial quantitative information on the potential and costs of adaptating coasts to sea-level rise. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This comment is no longer relevant given the revised table entries. See Table SPM.1.
1923	61823	SPM	25	0	0	0	Table SPM.4: In the entry "Europe" / "Human systems", it is not clear why "economic development and land-use change" are mentioned explicitly in the context of heat-wave mortality. Heat-wave mortality would increase even in the absence of "economic development and land-use change" due to porjected climate change alone. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The relevant example has been substantially clarified. See Table SPM.1.
1924	62479	SPM	25	0	0	0	Asia: Uncertainty/probability information related to shrinking of Glaciers and relevance for water demand is missing. In suh cases, adaptation will course may result in some non-climate change co-benefits. (INDIA)	This example is no longer included. See Table SPM.1.
1925	66110	SPM	25	0	0	0	Table SPM.4 The concepts of eras of climate responsibility and options are very interesting and could be useful in delivering the message of risks of climate change to decision makers. However, they are not very clearly defined and described in the caption and the caption text leaves perhaps too much room for the reader's own interpretation. Also, the caption might not be the best place to describe the concepts and it might be better to open the concepts in the text itself. The Table SPM 4. itself is quite long and requires quite a lot of concentration from the reader. Also, some concepts are not described, for example what is meant by "fully adapted state" A (and as a whole, is it even possible to reach such a state, as adaptation is and will be a continuous process). As there is no clear time scale for the progress of the level of climate change (T), it is a bit difficult for the reader to estimate how urgent the risks are and when would they materialize and therefore to assess the urgency and need to act. Furthermore, in Table SPM 4. the regional risks are described but their interdependence is ignored. If, for example, North America would face notable productivity declines in major crops, this would have major implications for other world regions as well. Also, within the regions, risks can differ greatly and, for example in Europe, severe long lasting drought in the Mediterranean area would have implications for other parts of Europe (such as possibly increased demand for agricultural land, water resources etc and immigration from Southern Europe). (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	The framing of information presented in the table has been very substantially revised and clarified. See Table SPM.1.
1926	67985	SPM	25	0	0	0	Table SPM.4.: The table could be revised to provide the better understanding the relationship between the risks and adaptation issues discussed herein and temperature increased. (JAPAN)	This relationship has been substantially improved in the revised table. See Table SPM.1.
1927	67986	SPM	25	0	0	0	Given the vast geographical coverage of Asia and hence the diversity of Asian subregions, examples for Asia should be provided for each sub-region when available. (JAPAN)	Despite diverse characteristics unique to each region, a similar number of key risks is provided for each region. See Table SPM.1.
1928	68011	SPM	25	0	0	0	Table SPM.4.: The single Central Asian example provided as a regional example of risks for freshwater resources and systems is insufficient to represent the vast diversity of the Asian continent. Suggested additions representing the various subregions are: "Throughout much of Russia, a warmer climate would decrease water availability due to the increase in evaporation but on the other hand precipitation would increase which tends to increase water availability)." (Chapter 24 page 10 lines 19-22); "In China, a projection (A2, PRECIS) suggests that there will be insufficient water for agriculture in the 2020s and 2040s due to the increases in water demand for non-agricultural uses, although positive trends in precipitation may occur in some areas."; and "In a study of the Mahanandi River Basin in India, the future water availability projection (A2, CGCM2) indicated an escalating trend in excess river runoff (runoff after meeting water demand), thereby increasing the future possibility of floods for the month of September, yet the outcomes for April indicate an accelerating water scarcity." (JAPAN)	Focus on the important key risks for each region has been improved. See Table SPM.1.
1929	68508	SPM	25	0	0	0	We find the meaning of the coloured double bars difficult to understand. It becomes even more complicated when four bars are presented, such as for Europe and Asia. (NETHERLANDS)	The framing of information presented in the table has been very substantially revised and clarified. See Table SPM.1.

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1930	68509	SPM	25	0	0	0	This sentence "Most published risk assessments do not include consideration of adaptation (Huang et al., 2011)." at page 26 line 5 of chapter 23 (23.5.1) may partially disagree with the conclusion that "Adaptation can prevent most of the projected damages (high confidence)." stated under "Adaptation Issues/Prospects" for Europe in the Table. Please evaluate it (NETHERLANDS)	For the related entry in the revised table, substantial further detail has been added in support of this point. See Table SPM.1.
1931	70630	SPM	25	0	0	0	Table SPM.4: It is very surprising that there are no examples from the small islands "region" in either the "Freshwater Resources and Systems" and Coastal and Marine Systems" risks areas. The only place that small islands feature in the table is in the "Human Systems" risks area. (NEW ZEALAND)	A new approach has been taken such that examples for each region are presented together, highlighting salient key risks for each. See Table SPM.1.
1932	71028	SPM	25	0	0	0	Table SPM.4: 1. Consistent with other comments, suggest revising this Table to eliminate use of the phrases "era of climate responsibility and era of climate options". 2. The authors are commended for trying to create a visually interesting table with icons that convey information about drivers and risks and adaptation potential. It does take some work to grasp the era and adaptation potential icons, but once the initial hard work is done, the use of these icons is generally effective (although they should be given new titles). 3. the single icons intended to represent risks for which adaptation potential was not assessed is only used once in the entire table and so perhaps is not necessary, and this would simplify the table. However, the many blank cells under Adaptation issues/prospects leads to questions about why the single icons were not used in these cases. If the blank cells do not mean 'not assessed' which might be assumed to be the case, then please explain what the blank cells means. (CANADA)	Revised phrasing has been adopted, and the visual presentation of information in the table has been very substantially revised to improve accessibility. Further, blank cells are no longer included. See Table SPM.1.
1933	76214	SPM	25	0	0	0	Table SPM.4 Comments - Recommend consideration of additional entries for Small Islands based on additional literature identified by reviewers of Chapter 29. Also concur with Reviewer/User #14356 regarding this Table. Additional citations identified in Chapter 29 comments are likely to provide Small Islands examples related to at least: Freshwater Resources; Terrestrial Ecosystems; and Coastal and Marine Systems. (UNITED STATES OF AMERICA)	A new approach has been taken such that examples for each region are presented together, highlighting salient key risks for each. See Table SPM.1.
1934	76215	SPM	25	0	0	0	Table SPM.4 Comments - Statements about glaciers and water security for Asia are missing a confidence statement. (UNITED STATES OF AMERICA)	A level of confidence is now provided for each key risk identified. See Table SPM.1.
1935	79298	SPM	25	0	0	0	The table at the bottom of the page. For Europe, increase in Coastal and river flooding, it says "that adaptation can prevent most of the projected losses": the use of the word "prevent" is too strong here and implies that action can prevent all financial losses as a result of flooding. We would normally say something like "reduce the level of.." in relation to damages. I realize that does not sound as strong a statement but it is more accurate (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Further detail is now provided to support the 1st assertion within this table entry. See Table SPM.1.
1936	79868	SPM	25	0	0	0	Table SPM.4, Under "Coastal and marine systems" - 6th row under "global", 2nd column ("risks"): how can deoxygenation of deep waters and spread of hypoxic zones be positive for some fisheries? Table SPM.4, 2nd row under "Polar regions" in the first column (NORWAY)	This example is no longer included within the table. See Table SPM.1.
1937	79869	SPM	25	0	0	0	Table SPM 4: Legend explanation. Here it says that "The vertical axis of each bar represents the level of climate change". We cannot see this vertical bar in the table. (NORWAY)	The visual representation of information in the table has been very substantially improved. See Table SPM.1.
1938	79870	SPM	25	0	0	0	Table SPM 4. What do empty cells mean? (NORWAY)	No empty cells are now included. See Table SPM.1.
1939	59798	SPM	25	0	25	0	SPM.4: The descriptors for each of the 'ERA and Adaptation Potential' indicators are not particularly easy to understand. (AUSTRALIA)	The approach to presenting information in the table, along with the accompanying descriptions, has been substantially improved. See Table SPM.1.
1940	62478	SPM	25	0	25	0	Asia- shrinking glaciers – Studies show different results..... may be revised accordingly (INDIA)	This example is no longer included within the table. See Table SPM.1.

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1941	66287	SPM	25	0	25	0	Table SPM.4: This clearly represents a monumental effort at summarising these multiple risks from chapter sources. I congratulate the author team on their attention to detail. However, I can't speak for the policy audience, but I'm afraid I had some difficulty interpreting all of the icons and the burning embers. I wonder if there is actually TOO much detail here. That said, it is easier to simplify from a comprehensive Table than to add new detail, so there is much scope for constructive and effective revision. I do have a more major concern, however, and that is the labelling of future periods as "Eras" of "climate responsibility" and "climate options". For two arbitrary time periods, separated by about 50 years, to be labelled in this way seems overly prescriptive, as well as being open to massive misinterpretation as well as mistranslation (into other languages). I didn't find any explanation of these labels, and there's nothing in the glossary. I think I recall hearing Chris refer to these in a presentation (was it at ECCA 2013 in Hamburg?), which is fine as a rhetorical device for drawing attention to the near- and longer-term consequences of action or inaction in mitigation/adaptation response, but I don't think such terms are appropriate here. (Timothy Carter, Finnish Environment Institute)	The visual presentation and categorization of information has been very substantially improved, addressing the points raised here. See Table SPM.1.
1942	67983	SPM	25	0	25	0	For Asia, "Increases in frequency and intensity of torrential rainfall, an increase in number of dry days, a decrease in maximum snow depth, increases of flood scale and frequency are projected. " should be mentioned. (JAPAN)	These topics are now further represented in the key risks presented for Asia. See Table SPM.1.
1943	78093	SPM	25	0	25	0	Table SPM 4: while the table is very dense in content, the legend does not differentiate visually enough between era of climatic responsibility and era of climatic options. This information may be too detailed for policy makers to look at (Philippe MacClenahan, Synergies Environnement)	The visual presentation of information has been substantially clarified, addressing these points. See Table SPM.1.
1944	78094	SPM	25	0	25	0	Also the sign "T" and the color red lend to believe this deals with temperature warming up only (Philippe MacClenahan, Synergies Environnement)	The visual presentation of information has been improved, addressing this point. See Table SPM.1.
1945	78095	SPM	25	0	25	0	There is no explanation in the text of what a "Fully adapted state" (A) refers to (Philippe MacClenahan, Synergies Environnement)	The revision of the table has included clearer terminology and better description within the table caption. See Table SPM.1.
1946	80475	SPM	25	0	25	0	Table SPM.4 (and TS.5) is very interesting and useful. Yet, it only shows climate-related drivers, which is only part of the story. For didactic and informational purposes, it would seem very useful to discuss and visualize socio-economic drivers as well. Actually, this is being done in table TS.3 and I wonder how to bring in this kind of information and visualization to the SPM and TS. In fact, these non-climate-related drivers are mentioned, yet as risks, such as for Asia: exposure growth and increasing income, for Africa: land use change and governance structures. The same would hold true for table TS.7 (Reinhard Mechler, INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS)	Visual icons for vulnerability are included within the technical summary table specifying, for each hazard, key vulnerabilities, key risks, and emergent risks. The writing team felt it was clearest not to use multiple sets of icons within each of these contexts. See Table SPM.1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1947	64000	SPM	25	0	26	0	Table SPM.4: This is a very interesting and dense table, the general approach is very promising to give an overview of the risks due to climate change assessed in this report. It is therefore profoundly policy relevant. It is however very complex and in parts confusing. We have the following comments and suggestions: General approach: 1. The concept of the two era together with associated time frames needs to be clearly explained in the full text, and shortly in the caption. 2. The names of the era are not intuitively comprehensible, please improve, suggestion: era of (mid-term) choices, era of (long term) consequences. 3. When presenting risks based on examples, it is critical to clearly explain the selection criteria for the examples chosen. Otherwise the table remains a collection of subjectively chosen narratives. Please add explanation for selection criteria. 4. The definition/reference base of "risk" in this context is not entirely clear. It should be clarified that the information plotted to the vertical axis is normalised (iconified?) and gives relative information for each individual risk. 5. In cases where a risk can be reduced substantially with proactive adaptation as indicated in the column "Era & Adaptation Potential" it does not seem to be logical, if no comment (such as suggested adaptation measures, or barriers to adaptation) is made in the column "Adaptation Issues/Prospects". 6. What does "high confidence" in the column "Adaptation Issues/Prospects" mean? Does it relate to being aware of the existence of adaptation issues or having knowledge on solutions or on being sure that those solutions will be in place? 7. We suggest adding a further column which summarizes the urgency or need to act, based on the risks shown in the risk-bar-pictograms. This should be done in an easily understandable pictogram which could used for communication issues later on, e. g. a quadrate consisting of three parts: the upper half stands for mitigation requirements and the lower half (differentiated into two little quadrates) gives the adaptation requirements: left part for immediate adaptation needs and the right part for future adaptation needs. Translating the bar combinations into this pictogram would result in quadrates, where in each case assumably the upper half is colored in red (means mitigation always reduces risks). The lower half of the quadrate shows the timing when adaptation could be additionally successful (or even not): left part in red: adaptation now reduces risk / unfilled: adaptation is not possible to reduce risk and right part in red: adaptation later can reduce risk / unfilled: adaptation later cannot reduce risk. 8. Please add level of confidence to ALL statements. 9. An additional block for "risk in urban areas" should be included. 10. Why are some boxes in the column "Adaption Issues/Prospects" empty? Please provide an explanation. It would be very helpful to fill out the column "adaptation issue/prospects" for each row and explain the risks shown in column "Era&Adaptation Potential". 11. Is there a reason not to include floods and permafrost as climate drivers? 12. Why is drought a risk and not a driver? (GERMANY)	The visual presentation of information and introduction of criteria and context in the table caption have been very substantially improved, addressing most of these points directly. Blank cells are no longer provided. A broader set of drivers is included, while still maintaining focus on the most concise set possible. See Table SPM.1.
1948	57712	SPM	25	0	28	0	Table SPM.4 I find the interpretation in this table difficult (era and adaptation column). Is there any way to simplify and clarify the presentation? (Anne Kasurinen, University of Eastern Finland)	The visual presentation of information has been very substantially clarified and improved. See Table SPM.1.
1949	59797	SPM	25	0	28	0	Table SPM4: It is not clear why some rows show two 'Era and adaptation' graphs and some only show one. (AUSTRALIA)	The improved presentation of information now avoids this issue. See Table SPM.1.
1950	64002	SPM	25	0	28	0	Table SPM.4: specific comments on systems Freshwater Systems: Asia: Please add levels of confidence. Please include Africa, as Ch 22, P 18 L 3 to P 19 L 47 indicates that "several studies point to a future decrease in water abundance (high confidence)". Coastal&Marine Systems: Please add Central and South America, the Caribbean, and low latitude Asia. Terrestrial Ecosystems: North America: "A global increase of 2°C..." Why is there no line for observations relating to global observations? Some issues are not restricted to single regions. Throughout the whole table: Explicitly consider Pacific islands under Australasia. (GERMANY)	A level of confidence is now included for all key risks identified within the table. For the specific queries, examples are now organized by region, emphasizing salient key risks for each. See Table SPM.1.
1951	65316	SPM	25	0	28	0	Table SPM4 presents a very comprehensive picture of regional risks that could increase with increasing level of climate change, and could be a very powerful tool for policy makers. How does interpret it when there are no entries under "Adaptation issues/prospects"? None exists? (Lourdes Tibig, The Manila Observatory)	Now, no blank entries exist in the table. See Table SPM.1.
1952	65392	SPM	25	0	28	0	Table SPM 4: More explanation would be required on the choice of examples. E.g. it is difficult to understand that Africa is not addressed with respect to freshwater resources and systems although it is well known that availability of water resources is a significant challenge for many African regions. It is also difficult to understand to include examples with no information on Adaptation issues/prospects. How should the reader interpret this table? (Klaus Radunsky, Umweltbundesamt)	Now, no blank entries exist in the table. Additionally, examples are now organized by region, emphasizing salient key risks for each. See Table SPM.1.
1953	66080	SPM	25	0	28	0	Table SPM.4. The column on the right (Adaptation Issues/Prospects) should contain information, now most of the cells are empty. The symbols in columns "Climate Drivers" and "Era & Adaptation Potential" are somewhat confusing and hard for the reader. We have doubts concerning the use of concepts of the two eras (climate responsibility and climate options). (FINLAND)	No blank cells are present in the revised table. The presentation of material has been very substantially clarified as well. See Table SPM.1.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1954	67981	SPM	25	0	28	0	Table SPM4: The burning embers seems have different meaning from those in SPM Box6 Figure1, and indicates the timing of the risk increase. Furthermore, as shown in the caption, there are only two kinds of variation for C, and three for A, and would be able to utilize more direct expression. Therefore, for the purpose of simpler and more effective expression without any misleading the readers, it would be better to change use the much easier expressions, which can indicate the timing of climate change effects and adaptation effects. (JAPAN)	The visual presentation of information has been very substantially improved and clarified, addressing these points. See Table SPM.1.
1955	67982	SPM	25	0	28	0	Table SPM.4 In this table, more other "Climate Drivers" which cause remarkable current and potential comprehensive risks should be listed as the remarkable "Climate Drivers" in each region, in order to avoid misunderstandings by the Policy Makers that existing current serious risks and increasing risks are negligible or alleviated as the result of future climate change without considering positive impacts by the drivers. For example, freshwater resources and systems in Asia are significantly vulnerable to tropical cyclones and the future change of intensity and frequency of them, however, only temperature is listed as "Climate Drivers" in the corresponding column in page 25. [Risks - Coastal and Marine systems are significant vulnerable not only to Sea level but also to the cyclones.] (JAPAN)	To address this point, risk levels at present are specified for each key risk within the table. Cyclones as a driver are now included in one key risk for Asia. See Table SPM.1.
1956	67984	SPM	25	0	28	0	We request all author teams in WGII ensure the consistent use of the terms in BOX SPM.2. (SPM p2 line 48 to p3 line 7) for streamlining the uncertainty communication, because the different and inconsistent use of terms among different authors, sections and chapters contributes to confusion among readers. For example it is difficult to interpret what exactly the IPCC author team intends to mean by "high agreement with low evidence". The current use of the terms would not serve effectively as a guiding tool for informed decision making. (JAPAN)	Levels of confidence are now presented for all key risks included in this table. See Table SPM.1.
1957	68010	SPM	25	0	28	0	Table SPM.4.: There is far too little discussion of Asia in the table as a whole. Given the vast geographic and climatic diversity of the Asian continent, it can not be represented by one single example and therefore, examples representing each subregion should be provided where possible. (JAPAN)	The balance of examples presented across regions has been substantially improved. See Table SPM.1.
1958	70623	SPM	25	0	28	0	Table SPM.4:The 'embers' symbols all appear very similar.The comparable table in Chapter 25 (Table 25.8) is clearer. (NEW ZEALAND)	The visual presentation of information in the table has been very substantially improved. See Table SPM.1.
1959	71027	SPM	25	0	28	0	Table SPM.4 - Suggest that the snow cover symbol should be appearing in "Risks - freshwater resources and systems" as changing snow cover is mentioned frequently throughout the WG2 report in the context of less spring water storage contributing to summer water deficit. Declining snow cover is also mentioned frequently in WG2 report in the context of adverse impacts on ski and tourism industries (CANADA)	Examples are now presented by region, rather than by sector. See Table SPM.1.
1960	79034	SPM	25	0	28	0	Table SPM.4: Please consider shortening this table considerably (to 2 pages max.). The number of "examples" provided here is too high and the legend is too cryptic to be understood at a glance. For example, the era & adaptation potential indicators are too small and it is neither clear whether two pictures in the respective column indicate the two eras or two other aspects. If white to red indicates risk levels, how do you deduct a moderately increasing risk in the top-right figure of the legend and a possibility for severely increases in the middle-right panel? (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	The table has been shortened, and its presentation of information substantially clarified. See Table SPM.1.
1961	79299	SPM	25	0	28	0	TABLE SPM4: We suggest finding a way to make the legend clearer, as it is currently very difficult to follow and the reader cannot easily see what the 'era and adaptation potential' bars represent. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The visual presentation of information has been very substantially improved to enhance accessibility for the reader. See Table SPM.1.
1962	61824	SPM	25	1	0	0	In Table SPM.4, the terminology "era of climate responsibility" and "era of climate options" is confusing and counter-intuitive. That is because 'options' implies choices - however, as pointed out in Box SPM.4 (page 8), "current decisions narrow future options". Thus the present time/immediate future is the "era of climatic options", whilst after 2050 is the "era of climatic constraints". Note that this comment also applies to Fig SPM.5 (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The terminology and presentation of information in the near-term and long-term has been clarified and improved. See Table SPM.1.
1963	61825	SPM	25	1	0	0	The legend isn't very clear and there are duplications. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The visual presentation of information within the table has been very substantially improved. See Table SPM.1.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1964	61826	SPM	25	1	28	0	Table 4 seems much too complicated - propose to leave in TS but drop in SPM. If maintained, it should be much better explained. One message conveyed is that (for those areas with 2 bars only) there is no information about effectiveness of adaptation, which may suggest that we don't have to worry before the era of options (change word, please as proposed earlier!). Some cells are yet to be filled (bars for agricultural yields Europe, water scarcity Europe - mediterranean), while some seem incorrect (e.g., .yields would increase in Northern Europe in general, rather than only up to the medium term, costs of upgrading coastal defenses doesn't give adaptation bars, while this is the best research sector). The likelihood statements need to be replaced by either the 2D or confidence scales because for impacts there is generally not sufficient information to warrant such statements!. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Visual presentation of information within the table has been very substantially improved. Blank entries are no longer present. Levels of confidence are presented, as well, for all key risks identified. See Table SPM.1.
1965	64001	SPM	25	1	28	0	Table SPM.4: Graphical and text realizations: 0. Significant global impacts of climate change cannot be alleviated by adaptation measures, but can have significant important risks. In addition, detailed information on global risks is important for the global risk assessment presented in Box SPM.6 Figure 1 (RFC). Therefore please add global information to Table SPM.4, as in Table TS.5. 1. Please improve design of illustration that its meaning can be intuitively understood, since this table is crucial for the whole chapter this table should be understand easily by the reader. 2. Please explain what is meant when only one pictogram is shown, the explanation in the legend is not clear enough. Instead of showing only one pictogram if no information on the fully adapted state is available, the second pictogramm could remain empty. 3. Pictograms for risk: frame the pairs with a box; this would clarify the structure a bit. The blue line should not cut across the white/red box. 4. Simplify the LEGEND of "ERA & ADAPTATION POTENTIAL": Beginning top left and continuing top right, medium left, medium right and so on a simple translation of the text already given could be: "risk emerges early and can be reduced by adaptation / risk emerges early and cannot be reduced by adaptation / risks emerges later and can be reduced by adaptation / risk emerges later and cannot be reduced by adaptation / risk emerges early, adaptation potential unclear / risks emerges later adaptation potential unclear". 5. The icons chosen for era&adaptation potential are quite hard to understand since they are all very similar and too small. The transition from white to red is not clear enough, in other representations of risks, like in the "reasons for concern", yellow/red is used instead of white/red and it would be easier to use the same color code. 6. Column "era & adaptation potential". Which era is left, which is right? 7. The label "T" for the vertical axis in the icons given in column "era & adaptation potential" may be replaced by "CC". "T" as a symbol for climate change could be misinterpreted as temperature increase only or time (which is probably not meant?) In addition, the label is missing in the pictograms. 8. Column 3 with the pictograms of climate drivers could be deleted. Instead, the drivers could be explicitly instead stated in column 2 (as done already in many entries). The gained space could then be used for an improved representation of risk. 9. There is no need to repeat in each of the headings for the different sector the word "RISK", please delete. 10. Illustrations should also be clear in black/white printing; 11. There is no need to repeat in each of the headings for the different sector the word "RISK", please delete. 12. Has this table been created, in particular the risk assessments, for the SPM? If not, please provide references to the underlying report. (GERMANY)	The visual presentation of information has been very substantially improved and clarified. Additionally, the table now focuses on examples for each region. An accompanying table in the technical summary presents key risks by sector. See Table SPM.1.
1966	62480	SPM	26	0	0	0	If you read the line on Coastal Marine ecosystems of Asia - There is one sentence dealing with Arctic regions. There is not a sentence on coastal Marine ecosystems of South Asia which are most vulnerable to Climate change affecting the livelihoods of millions of people. The table SPM 4 will have to be completely re-written or dropped. (INDIA)	The table has been very substantially revised to improve its clarity. Additionally, examples are now presented by region. See Table SPM.1.
1967	67988	SPM	26	0	0	0	Examples other than Permafrost should be included for "Risk Terrestrial Ecosystems, Drought & wildlife" in Asia. Change in phenology and growth rates are observed in subregions in Asia (section 2.4.2) and such findings should be included herein. (JAPAN)	Key risks are now presented by region, highlighting salient key risks for each. See Table SPM.1.
1968	68012	SPM	26	0	0	0	Table SPM.4.: Regarding the ecosystem, the examples such as the vegetation change should be included in each region. (JAPAN)	Key risks are now presented by region, highlighting salient key risks for each. See Table SPM.1.
1969	68510	SPM	26	0	0	0	Please verify if the confidence in the first two statements in "RISKS — TERRESTRIAL ECOSYSTEMS, DROUGHT, & WILDFIRE" of the Table SPM.4 is correct. Judging from a quick read of the cited references to chapter 23, it seems that there is more agreement/confidence on range shift than species extinction. (NETHERLANDS)	This example is no longer included within the table. See Table SPM.1.
1970	68511	SPM	26	0	0	0	The column on Adaptation Options/ Prospects is Table SPM.4 incompletely filled in. (NETHERLANDS)	Blank cells are no longer included within the table. See Table SPM.1.
1971	68512	SPM	26	0	0	0	Table SPM.4 In the table under Australasia, fire weather has been interpreted as wildfire - and we don't think they are the same thing? XX (NETHERLANDS)	This example is no longer included within the table. See Table SPM.1.

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1972	68513	SPM	26	0	0	0	Table SPM.4 Australasia row, states endemic species are a risk of extinction but we find no reference to this, only that native species face this risk. There is reference to "local species extinctions" but we don't think this is necessarily the same thing. It is ambiguous, could mean extinction in a localised area. (NETHERLANDS)	Wording has been improved with respect to these points. See Table SPM.1.
1973	80484	SPM	26	0	0	0	[Table 4: Terrestrial Systems Drought and Wildfire] Suggest adding: "In Central America and S.Mexico's Yucatan Peninsula tropical storms causing extensive and sudden onset flooding diminish subsistence and commercial plantation commercial agriculture in lowland areas threatening livelihoods." (Gentry Blake, Institution no 1: Gente de litoi A.C., non-profit in Mexico. Dir. of Health Services.)	Examples are now organized by region, emphasizing salient key risks for each. See Table SPM.1.
1974	67987	SPM	26	0	26	0	For Asia, "Decreases of drought river discharges and river discharge are projected." should be added. (JAPAN)	A key risk on this topic is included within the table. See Table SPM.1.
1975	62483	SPM	26	0	28	0	SPM 4: Under the Adaptation issues/prospects column in the table, several cells have been left blank. I am not sure if they have not been copied properly or if this implies that there are no possible adaptation issues or prospects for these impacts. It may help if this is made clear. (INDIA)	Blank entries are no longer included within the table. See Table SPM.1.
1976	71029	SPM	26	1	0	0	In Table SPM-4, under the "Region" section for "North America", the potential impact of a 2degree C increase on biodiversity and ecosystem services is identified. This is the only place where the 2degreeC is specified in this Table. If the intention is to indicate the high confidence impact for a likely increase in temperature I suggest that these terms be used in preference to 2degreeC as in the other parts of the same table. (CANADA)	The approach to presenting information within the table has been very substantially improved, addressing this point. See Table SPM.1.
1977	58064	SPM	27	0	0	0	Table 4: No information about the risks to coastal and marine systems in Central and South America nor the Caribbean (Carmen Lacambra Segura, Grupo La era)	Examples are now presented by region, highlighting salient key risks for each. See Table SPM.1.
1978	58836	SPM	27	0	0	0	TABLE SPM4, Section on risks to human systems in Africa. We recommend expanding this section to highlight that extreme climate and weather-related events such as droughts and floods also affect food security in Africa. In addition, we consider that it would be important to mention that climate change may exacerbate land degradation and scarcity of key resources such as water, with negative impacts on the livelihoods of food insecure households. As an emerging risk, we also recommend highlighting that food price volatility may be linked to climate variability, and could lead to higher rates of food insecurity in several African countries. (Carlo Scaramella, World Food Programme)	Examples are now organized by region, with many of these topics represented in the key risks identified for Africa. See Table SPM.1.
1979	62481	SPM	27	0	0	0	Adaptation issues- mangroves (rejuvenating or growing new forests) can be one adaptation option (INDIA)	It appears that this comment is addressing one of the blank cells in the previous version of the table. The revised table no longer includes blank cells. See Table SPM.1.
1980	65020	SPM	27	0	0	0	Table SPM 4 section, Risks-Coastal and Marine systems: Why no section on North America? Certainly there have been papers out on the risks of high temperatures on the inter-tidal organisms of the northwestern US where low tides in summer occur in the early afternoon. (George Hunt, University of Washington)	Examples are now organized by region, highlighting salient key risks for each. See Table SPM.1.
1981	65021	SPM	27	0	0	0	Table SPM 4 section, Risks-Coastal and Marine systems, Polar Regions: Why no mention of the potential effect of the loss or reduction of sea ice on the feeding and production of krill (Bering Sea, Arctic and Antarctic- especially the West Antarctic and Peninsula region) and large, lipid rich copepods needed to support fish populations (southeastern Bering Sea, possibly elsewhere in the Arctic). (George Hunt, University of Washington)	Examples are now organized by region, for the regional chapters developing assessment of key risks through this approach. As a result, a key risk on this specific topic could not be supported within the table. See Table SPM.1.
1982	67990	SPM	27	0	0	0	Table SPM.4.: The box for "Asia" under "RISKS: COASTAL & MARINE SYSTEMS" discusses only the Arctic region while the text highlights the impacts of coastal flooding. Therefore, it is suggested that the following risk is added to the table: "By 2100, without adaptation, the majority of people projected to be affected by coastal flooding and displaced due to inundation and erosion will be in East, Southeast, and South Asia [5.4.3.1] ." (JAPAN)	Examples, now organized by region, highlight the salient key risks for each region. Overlap between examples in the table and the text of the summary for policymakers has been substantially reduced. See Table SPM.1.

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1983	68013	SPM	27	0	0	0	Table SPM.4...: The single Asian Arctic example provided as a regional example of risks for coastal and marine systems is insufficient to represent the vast diversity of the Asian continent. Considering the importance of Asia, in terms of its dominating the global production of food from both capture fisheries and aquaculture, and the highlight on coastal flooding in Chapter 5, more examples should be introduced from Asia. Suggested additions representing the various subregions are: "Sea-level rise is expected to impact both capture fisheries and aquaculture production in river deltas." (Chapter 24 page 27 lines 14-15); "For marine capture fisheries, climate change may lead to a massive redistribution of fisheries catch potential, with large increases in high-latitude regions, including Asian Russia, and large declines in the tropics, particularly Indonesia." (Chapter 24 page 27 lines 15-19); "By 2100, without adaptation, the majority of people projected to be affected by coastal flooding and displaced due to inundation and erosion will be in East, Southeast, and South Asia." (Chapter 5 page 3 lines 23-25) (JAPAN)	Examples are now organized by region, highlighting salient key risks for each. See Table SPM.1.
1984	68514	SPM	27	0	0	0	In the "Risks-Human Systems" part, related to Africa, there is a reference to paragraph 19.2.3. There should maybe also be a reference to paragraph 19.5.1., because that is where the case of Africa as a hotspot is discussed. (NETHERLANDS)	This example is no longer included within the table. See Table SPM.1.
1985	68515	SPM	27	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "...with income growth driving the largest part of this increase from 2000-2050 (especially in eastern regions) (medium confidence)", not in 23.3.2 or 23.3.4, in reference Isaac and Van Vuuren (2009) for Western Europe, no information found for Eastern Europe (NETHERLANDS)	This example is no longer included within the table. See Table SPM.1.
1986	68516	SPM	27	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "Climate change will increase problems associated with overheating in domestic housing", no confidence level given (see Ch.23 p.3 line 43) (NETHERLANDS)	Levels of confidence are now included for all key risks within the table. See Table SPM.1.
1987	68517	SPM	27	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "but decrease cereal yields in Southern Europe", in Ch.23 p.18 line 30 speaks of yield loss in general, not only cereals (NETHERLANDS)	This example is no longer included within the table. See Table SPM.1.
1988	68518	SPM	27	0	0	0	One could mention in the Adapataions Options/Prospects column of RISKS - Coastal & Marine Systems for Asia: Rise in sea levels need to be safeguarded through livelihood security. Impacts on coastal communities will lead to effects of overcrowding and hence diversification of assets is needed. Fauna and flora need to be assessed in these regions for their safeguard. (NETHERLANDS)	Blank cells are no longer included in the table, and thus related issues have been addressed even though this specific example is no longer included. See Table SPM.1.
1989	68519	SPM	27	0	0	0	Table SPM.4 Under Australasia, there is a misinterpretation of text: the original text says evidence is limited about the ability of reefs to respond to CC, but the claim is that a reef's ability to respond is limited. (NETHERLANDS)	This mismatch has been remedied. See Table SPM.1.
1990	79300	SPM	27	0	0	0	Table SPM4 final section 'human systems' - weak, needs to demonstrate the consequences for human health. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Examples are now organized by region, highlighting salient key risks for each. See Table SPM.1.
1991	67989	SPM	27	0	27	0	For Asia, "Increases in the magnitudes of severe storm surge anomalies, and increases of extreme wave heights are projected." should be mentioned. (JAPAN)	Examples are now organized by region, highlighting salient key risks for each. See Table SPM.1.
1992	58837	SPM	28	0	0	0	TABLE SPM4, Section on risks to human systems in Asia. We recommend expanding this section to mention the potential impacts of cyclones, and particularly typhoons, on food security, in addition to those of droughts and floods which are already mentioned. We consider that it would also be important to mention that urban food insecurity and vulnerability is an emerging trend in the region. (Carlo Scaramella, World Food Programme)	Examples are now organized by region, highlighting salient key risks for each. See Table SPM.1.
1993	63161	SPM	28	0	0	0	Table SPM 4 - Risk - Human Systems Polar Regions section - Is reference being made to thawing permafrost here as well as loss of sea ice? Revise sentence "...where sea ice loss and thawing permafrost disrupt transportation..." (Sharon Smith, Geological Survey of Canada)	This example is no longer included. See Table SPM.1.
1994	65022	SPM	28	0	0	0	table SPM 4 Risks - Human Systems, Polar Regions: Talking with hunters from Barrow, it is not clear that the decrease in ice will be an entirely negative impact on hunting, as open water allows hunting of seals from boats. (George Hunt, University of Washington)	This example is no longer included. See Table SPM.1.
1995	67992	SPM	28	0	0	0	Table SPM.4.: The box for "Asia" under "RISKS: HUMAN SYSTEMS" should also include the projected impacts on food production as a result of saltwater intrusion, especially in deltas. (JAPAN)	Examples are now organized by region, placing the emphasis on highlighting the salient key risks for each. See Table SPM.1.

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1996	68014	SPM	28	0	0	0	Table SPM.4...: Asia should preferably been presented in subregions, representing the diverse geographical and climatic features of the vast continent. Suggested additions for risks in human systems to represent the various subregions are: "Climate change is expected to impact water resources, and thus the viability of agricultural livelihoods in the Asian region in a major way. Diminishing Himalayan glaciers would impact the agricultural water supply and food security of more than one billion people in Asia." (Chapter 9 page 9 lines 48 to page10 line 3); "Many Asian countries are major tourist destinations and more studies are needed to understand the impact of climate change on tourism. With respect to beach tourism, large developing countries and small islands states may be among the most vulnerable due to high exposure and low adaptive capacity. A number of Asian countries were found vulnerable in this regard." (Chapter 24 page 31 lines 53 - page 32 line 2) (JAPAN)	Examples are now organized for the whole of each region, placing the emphasis on highlighting the salient key risks for each through an integrated view. See Table SPM.1.
1997	68520	SPM	28	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "Climate change will inhibit thermal power production during summer", word "inhibit" is too strong, should be "decrease", Ch.23 p.15 line 28-30 mentions a "6-19% decrease of the summer average usable capacity of power plants" and "lower figures have also been estimated" (NETHERLANDS)	This example is no longer included in the table. See Table SPM.1.
1998	68521	SPM	28	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "Increasing damage of cultural buildings and loss of cultural landscapes across most sub-regions by 2050 (medium emissions)", 2050 and medium emissions not mentioned in section 23.5.4 or Table 23-5 (NETHERLANDS)	This example is no longer included in the table. See Table SPM.1.
1999	68522	SPM	28	0	0	0	Table SPM.4 - Risks - Human systems - Europe: Reference to Table 23-5 not correct, should be Table 23-4? (NETHERLANDS)	References have been updated. See Table SPM.1.
2000	68523	SPM	28	0	0	0	Table SPM.4 - Risks - Human systems - Europe: "... Including buildings, local industries, landscapes, and iconic places such as Venice": Section 23.5.4 , page 28 line 35, states that Venice previously was vulnerable to flooding, but that adaptation measures have now been taken and that the frequency of storm surges may decrease, so that now the climate change impact on Venice is estimated to be smaller, suggest to skip the reference to Venice. (NETHERLANDS)	This example is no longer included in the table. See Table SPM.1.
2001	68524	SPM	28	0	0	0	Table SPM.4 In table under Australasia, reference to "food production" seems a little alarmist because we can only find reference to the effects of water availability on "agriculture production" which includes animal and human food production, fibre, biofuel production, etc. (NETHERLANDS)	This example is no longer included in the table. See Table SPM.1.
2002	76216	SPM	28	0	0	0	Table SPM.4 Comments - The health statements (and confidence statements) for Asia do not have an assessed confidence level in chapter 24 (see p. 34). (UNITED STATES OF AMERICA)	A level of confidence is now included for each key risk identified. See Table SPM.1.
2003	67991	SPM	28	0	28	0	Table SPM4: The box for "Asia" under "Adaptation Issues/Prospects" is not applicable to whole Asia, so recommended to add "in parts of Asia," (JAPAN)	This example is no longer included in the table. See Table SPM.1.
2004	58838	SPM	29	0	0	0	TABLE SPM5. We suggest including an example on food security. Suggested text: Hazard/stressor: Erratic and unpredictable rainfall patterns. Key vulnerabilities: Rural households depend on climate-sensitive activities, such as rainfed agriculture. Key risks: Changes in rainfall patterns may affect food production. In addition, unpredictable rainfall could affect key livelihood activities, such as planting and harvesting of crops, which would in turn negatively affect availability of labour and income. Intense rainfall could also destroy key infrastructure and assets, further exacerbating food security risks. Emergent risks: Increasing magnitude of extreme weather events such as droughts, floods, and storms can exacerbate risks to food security among the most vulnerable households. Other emerging risks include urban poverty and food price volatility. (Carlo Scaramella, World Food Programme)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2005	68525	SPM	29	0	0	0	"Combined impacts of climate impacts" please check this statement. (NETHERLANDS)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2006	70624	SPM	29	0	0	0	Table SPM.5: Suggest replacing "soaring demand" with "increased demand" (NEW ZEALAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2007	79036	SPM	29	0	0	0	Table SPM.5: first example: Please check whether alien organism dominance is really more important than changes in productivity. Page 30: please change heading from "Examples from Chapter 19" to a more descriptive title. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.

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2008	79871	SPM	29	0	0	0	Table SPM 5, caption. Part of the caption is a very informative assessment of the finding in the table. Please consider to put this assessment in the SPM body text, and not as table text. The text here should only be text necessary to read the table. (NORWAY)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2009	79872	SPM	29	0	0	0	Table SPM 5, 1st row under "rising air, soil and water temperature", 4th column ("emergent risks"): include "Ecosystem change and loss of ecosystem services". What about examples from Central and South America? (NORWAY)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2010	67993	SPM	29	0	29	0	Table SPM5: The box for "Examples from livelihood and poverty" under "Hazard/Stressor" mentioned "Soaring demand (and prices) of biofuels" but it is no more current and mega trend, so it should be deleted. (JAPAN)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2011	63359	SPM	29	0	30	0	Table SPM 5 is useful, and does much to improve understanding of the concepts of key and emerging risks. However, some examples of emerging risks are quite speculative. (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2012	65395	SPM	29	0	30	0	Table SPM.5: This table is quite heterogenous as it shows a collection of four types of risks: risks linked to large regions (E.g. Europe), risks linked to a chapter (!), risks linked to a certain category of land (e.g. terrestrial and inland water systems) and risks related to a certain sector. This is not very clear and requires further explanation. (Klaus Radunsky, Umweltbundesamt)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2013	66081	SPM	29	0	30	0	Table SPM.5. No sources [links to chapters] mentioned in most of the cells. (FINLAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2014	67994	SPM	29	0	30	0	Table SPM.5: Incomplete referencing. Without chapter citing to indicate where information is from in the underlying report, difficult for policy makers who often first read the SPM to delve further into the underlying report. Insert underlying referencing for all text in table. (JAPAN)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2015	79301	SPM	29	0	30	0	Table SPM 5. It would be useful to have additional information on whether there is observational evidence for these 'key risks'. It is difficult to tell from this table which of these things are already happening, which may happen in the future and to what extent. This makes it very difficult for the reader to understand which are key points or to compare across these risks. * (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2016	61828	SPM	29	1	0	0	Many of the statements seem to refer to average changes - but risks are outliers in projections not average changes. Some projections suggest there will be big reductions in food production, for example. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2017	63357	SPM	29	1	0	0	Table SPM 5 delete "loss of faith" suggest replace with "reduced confidence in " (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2018	61827	SPM	29	1	30	1	This table aims to summarise the risks, but it doesn't actually provide much information on risk itself. What it provides is information on the impacts, not the risks that these impacts occur. The risk potential needs to come out more clearly in the SPM. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2019	64003	SPM	29	2	30	20	Table SPM.5: "Examples from Chapter 19" --> explanation or aspect to which this is referring should be given as to understand the heading without knowing what chapter 19 is covering. Please add the references to the underlying chapters in every field. Adding examples for security could be considered, e.g. on the bottom of P29. (GERMANY)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2020	63358	SPM	29	7	29	7	Table SPM 5, "Examples from livelihoods." The term "Soaring demand" is normative and qualitative. When is demand "soaring" as opposed to simply "increasing". An emerging biofuel market is not the only (or dominant) motivation for "land grabbing". The consequences of biofuel and other mitigation policies should be carefully considered with respect to potential adverse impacts on vulnerable communities and ecosystems. The argument here seems more a "strawman". One could argue more forcefully about processes in the intensification of agriculture and food production and the consolidation of land ownership leading to the dispossession of vulnerable communities. (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2021	58065	SPM	30	0	0	0	Table 5: No information about examples from Latin America and the Caribbean. 2010 and 2012 were years with devastating floods and landslides across the region, Peru, Venezuela, Colombia, Brazil were all severely affected by both and examples as the ones shown for the other continents are available (Carmen Lacambra Segura, Grupo La era)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2022	58873	SPM	30	0	0	0	please replace "Chapter 19) by title/name of chapter 19 (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2023	58874	SPM	30	0	0	0	North America : Are "hurricanes" a good example in this context? As far as I remember they are projected to increase in intensity but not in frequency ? (Christina Koppe, Deutscher Wetterdienst (German Meteorological Service))	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2024	63360	SPM	30	0	0	0	Table SPM 5. Group of examples headed "Examples from Chapter 19" needs a more meaningful heading (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2025	63361	SPM	30	0	0	0	Table SPM 5 Examples from Europe: why only one? The text is too technical, more clarity. Also, in general, the regional examples are not unique, or more frequent in the regions where they have been given as examples. (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2026	63362	SPM	30	0	0	0	Table SPM 5 Examples from Australasia: The first example of emerging risk, the compound impact of multiple extreme events is very important, but has not been elaborated in the main text. (IRELAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2027	68526	SPM	30	0	0	0	Table SPM.5, "temperature high extremes" is unclear. Perhaps "maximum temperature extremes" (NETHERLANDS)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2028	70625	SPM	30	0	0	0	Table SPM.5: No NZ-specific examples are mentioned. (NEW ZEALAND)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2029	62484	SPM	30	0	30	0	SPM 5: For the hazard of increasing temperature in Africa, the emergent risk (cell in row 6, column 4) is left blank. (INDIA)	This table is no longer included in the summary for policymakers. The comment was considered in revising the corresponding table within the technical summary.
2030	58066	SPM	31	0	0	0	Table 6: Biodiversity and conservation areas expansion. The greatest argument against this measure is that protected areas are static and species and ecosystem will migrate to conditions more suitable for them. Being protected areas static and despite the presence of corridors, there is still very limited information about how species and assemble of species, communities will react. There is a risk of competing for land, agriculture and other uses. Realistically we need to think further on the how, as at the moment is not really feasible, and this does not read clear in the report. (Carmen Lacambra Segura, Grupo La era)	This table is no longer included within the summary for policymakers.
2031	58067	SPM	31	0	0	0	Table 6: Coasts: a fourth option is not included. This option is to leave the coastal ecosystems as they are and promote their conservation. (Carmen Lacambra Segura, Grupo La era)	This table is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2032	61953	SPM	31	0	0	0	Table SPM 6: to the negative impacts of sea walls could be added that they can exacerbate damage down stream where enhanced shoreline erosion may occur. In the sea-walled section of wealthy suburb, this may transfer impacts to the unprotected city areas in low-lying areas often inhabited by the poor (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This table is no longer included within the summary for policymakers.
2033	65896	SPM	31	0	0	0	Table SPM.6. It is suggested to include some cross-reference in the second column "Strategy" to the categories of strategies proposed in Table SPM.3. (SPAIN)	This table is no longer included within the summary for policymakers.
2034	65897	SPM	31	0	0	0	Table SPM.6. Last column, "Real or Perceived Externality", provides examples of effects and impacts of adaptation actions on social, economics and environmental dimensions. It might be worth to separate the effects on the climate system itself, especially to identify possible actions that could be "maladaptation" (SPAIN)	This table is no longer included within the summary for policymakers.
2035	68527	SPM	31	0	0	0	In the first row and last column (i.e. the Real or Perceived Externality concerning Biotechnology and genetically modified crops) one could add Overdependence of GMOs leading to impoverished farmers due to increasing dependency on GMO suppliers. (NETHERLANDS)	This table is no longer included within the summary for policymakers.
2036	79873	SPM	31	0	0	0	Table SPM 6. Please consider including co-benefits, e.g. in another column to give a more balanced picture. Also it would be better to use another word than "externality". (NORWAY)	This table is no longer included within the summary for policymakers.
2037	67995	SPM	31	0	31	0	Table SPM6: In the box for "Agriculture" under "Real or Perceived Externality", the box for "Subsidized drought assistance; crop insurance" is only mentioned "if not appropriately administered" but it should be added in above box (Biotechnology...) and below one (Increased...). (JAPAN)	This table is no longer included within the summary for policymakers.
2038	78098	SPM	31	0	31	0	In Table SPM 6, for Coastal Sector, "SeaWall" is not a strategy; "Increasing seawall height" is one (Philippe MacClenahan, Synergies Environnement)	This table is no longer included within the summary for policymakers.
2039	61829	SPM	31	1	0	0	Table 6. Another example of a too negative assessment: only trade-offs are listed - please also include examples of synergies. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This table is no longer included within the summary for policymakers.
2040	64004	SPM	31	1	31	1	Table SPM 6: Generally, it would be logically more comprehensible, if the column "Adaptation Objective" would be placed prior to the column "strategy" - strategy follows the objective, not the other way around. In addition, to be useful the table should contain information on how to avoid these potential tradeoffs. (GERMANY)	This table is no longer included within the summary for policymakers.
2041	57713	SPM	32	0	0	0	Box SPM3, Figure 1. Is this figure necessary, as the text stated these issues clearly? (Anne Kasurinen, University of Eastern Finland)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2042	60334	SPM	32	0	0	0	Box SPM.3: Following the UNESCO Declaration "The race question", the term "ethnicity" should be used instead of "race". Please change this figure accordingly. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2043	61830	SPM	32	0	0	0	Box SPM.3 Figure 1: There are so many different arrows (white, black, blue, grey) and other graphical elements that are not properly explained that this figure is very hard to understand. Either rework completely, with proper explanations, or drop. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2044	67996	SPM	32	0	0	0	Boxes, figures and tables are crucial sources of information for policy makers and are often referred to in making policy decisions; thus the scientific soundness and containment of key policy relevant findings is critical. This figure is rather abstract and does not contain relevant in-depth information and is unlikely to be useful in the policy making process; and therefore, we suggest it be deleted or revised to illustrate what is written in page 4 lines 49-55. (JAPAN)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2045	68528	SPM	32	0	0	0	This graph is very vague whatever way we try to grasp the idea. We do not see the advantage in presenting it in the SPM. (NETHERLANDS)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2046	70295	SPM	32	0	0	0	BOX.3 Figure 1. While I do appreciate and commend the efforts that have gone into designing this graph, I nevertheless question whether it is actually helpful to the reader or if it can be easily misinterpreted. This concern is mainly focussed on the solution space triangle (grey). It is clear that privileged and resilient societies have large solution space, and that the opposite is true for marginalised and vulnerable societies (hence the triangular shape). But how about privileged but vulnerable societies, and marginalised but resilient societies? E.g. the example form "North American human system" (c.f Table SPM .1 entry for N.America; page 28 upper right corner) which has proven vulnerable despite it is by any standard a privileged society. Or, at the opposite end, the indigenous Actic people that by any global standard could be regarded as marginalised and despite that show a "high adaptive capacity" (cf. my comment on SPM page 6, line 8). Further having "vulnerable" at one end of the adaptive capacity dimension and then combining this with the inequality dimension and the two exposure types to create a differential vulnerability is confusing. Differential vulnerability could also be understood as the position along the adaptive capacity dimension (a resilient system/society have little vulnerability as opposed to a vulnerable society that of course have high vulnerability). I know that these terms are overlapping and a thorny business, but that only points towards that extra care is needed. (SWEDEN)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2047	70626	SPM	32	0	0	0	Box SPM.3 Figure 1 Caption First sentence is not clear. Plain language please. (NEW ZEALAND)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2048	76217	SPM	32	0	0	0	Box SPM.3 Figure 1 Comments - The key message(s) of this figure are not at all clear. There is no added value to this figure's inclusion. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2049	77545	SPM	32	0	0	0	Box SPM.3: Delete the word "Race" (SWITZERLAND)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2050	64005	SPM	32	0	32	0	Box SPM3 Figure 1: In general, a graph on the dimensions of vulnerability is useful and this graph offers a good basis. However, it needs a few changes to capture the full range of information and results as described in the SMP. Some suggestions and comments: 1. What is "Differential Vulnerability"? It is not explained in the SMP and as the glossary only defines 'vulnerability' it is not clear what the difference between the two terms is. It is explained in the subtext of the figure only. 2. The caption of the figure and the graph itself depict 'exposure to cc' and 'exposure to cc response' as two different analytical categories. In the graph, 'exposure to climate change' and 'exposure to climate change responses' are depicted as an influencing factor of 'differential vulnerability'. The arrows suggest that these are factors that lead to 'differential vulnerability'. In the caption of the figure, 'exposure to cc' and 'exposure to cc' responses are used as a reference unit. 3. The term 'exposure to climate change responses' might be nice from an editors point of view and seems reader friendly due to the parallel use for 'exposure to climate change'. However, I think it is not correct to apply the term 'exposure' in the field of policies or mitigation and adaptation activities. Here, people or groups are not 'exposed'. They can e.g. be active persons in adaptation or mitigation processes, they can benefit from certain policies/activities or not, etc. 4. The graph suggests six factors influencing the 'solution space'. The graph suggests that these are a) the only factors - the text, however, lists additional factors, and b) universal factors, or factors which play a role in all societies. Is this supported by scientific evidence and if so could you insert a reference? 5. The report lists many additional influencing factors that might affect vulnerability or adaptive capacity that might lead to 'differential vulnerability' besides e.g. climate change related policies. These additional factors are, for example listed on P 4 L 21 - 25. 6. The term "gender" should be replaced by the term "sex" (see also comment on SPM P 3 L 51) 7. Please replace "race" by "skin colour". Rationale: it is scientifically proved that whole humankind belongs to the same race. (GERMANY)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2051	79302	SPM	32	0	32	0	BOX SPM3 FIGURE 1: This diagram doesn't really add anything so we suggest removing. We are also very concerned about the value-laden language. If it is to be kept, the language should be changed. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2052	66288	SPM	32	1	32	1	Box SPM 3, Figure 1 is an interesting figure, and quite useful. However, I wonder if some measure of economic status needs to be included here. This may be implied under "class", though it really shouldn't be as higher class doesn't necessarily imply greater wealth, or more likely under "(dis)ability", though I find that to be misleading, because it suggests to me physical rather than economic capacity. Surely economic capacity is an important contributor to adaptive capacity, at least at the lower end of the income scale. (Timothy Carter, Finnish Environment Institute)	This figure is no longer included within the summary for policymakers. This comment was considered in revising the related figure within the technical summary.
2053	62083	SPM	33	0	0	0	Figure SPM.1. Putting Vulnerability and Exposure together in the way it is in this Figure is confusing to the reader if (s)he is trying to distinguish between these two concepts. It would be helpful to distinguish between these two concepts in the same way that these two concepts are distinguished in the definition box. It would also be more reader-friendly to include a brief definition of "key" and "emergent" risks in the caption (or in the definition box at the beginning of the chapter) that would at least help the reader understand the role of these concepts in this picture. (Joann de Zegher, Stanford University)	Vulnerability and exposure are now separated, and key and emergent dropped.
2054	65669	SPM	33	0	0	0	Figure SPM.1 - Figure legend no need for "schematic of". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This phrase has been deleted.
2055	68529	SPM	33	0	0	0	This graph could be presented more easy as Figure SPM.1 in the SREX report. These figures are similar but SREX is much more easy to understand. Reason: part of the figure consists of the Venn-diagram methodology and another part not! (NETHERLANDS)	Vulnerability and exposure are now separated as in SREX.
2056	76218	SPM	33	0	0	0	Figure SPM.1 Comments - We see no added value to this figure's inclusion. The links between these concepts are readily understood by most policymakers and - if they are not - this figure does not clarify the relationship. In addition, "key risks" refers only to risks from anthropogenic change (per the definition provided in Chapter 19). (UNITED STATES OF AMERICA)	Key and emergent risk are no longer included. The figure itself is still included, as it provides a framing for the entirety of the working group 2 assessment.
2057	77546	SPM	33	0	0	0	SPM.1: Under "Climate": Merge the two boxes "Natural Variability" and "Anthropogenic Climate Change", and merge the two boxes on Risk and merge the three boxes on Development (SWITZERLAND)	Key and emergent are no longer included, but the separate concepts under climate and development are still separated for clarity.
2058	79027	SPM	33	0	0	0	Figure SPM.1: The current conditions are missing. Development does not take place in a vacuum, it is a continuum. In addition, climate can change due to natural drivers, too. They may be of less importance - in the short run - then anthropogenic drivers, but neglecting them altogether opens this report for criticism. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	None of these factors described is excluded from the figure.
2059	79303	SPM	33	0	33	0	Information on "key" and "emergent" in the explanation for Figure SPM1 was not given but referring to their definitions in Sections Cii which come much later in the document. This is not easy to follow. The definitions for this two words are quite simple. They should be include here with the diagram. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Key and emergent are no longer included, for clarity.
2060	79304	SPM	33	0	33	0	Figure SPM1: Suggest adding in an arrow showing that climate change can also affect development (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Such interactions are incorporated within the figure through the effects of climate change on the vulnerability, exposure, and hazards, which can lead to impacts that affect development.
2061	57383	SPM	34	0	0	0	Figure SPM-2 nicely illustrates several important messages for policymakers. Though (A) and (B) are well-known, they still bear re-stating. (C) is a good new picture to illustrate that "there is no single correct adaptation pathway". (Tony Weir, University of the South Pacific)	This panel is no longer included within the summary for policymakers.
2062	61831	SPM	34	0	0	0	Figure SPM.2: This figure is hard to understand due to many unexplained elements. Furthermore, it is confusing that Panel (A) shows a four-step "adaptation cycle" whereas Panel (B) shows a four-step "decision cycle". Can these two cycles not be integrated? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This panel is no longer included within the summary for policymakers.
2063	61944	SPM	34	0	0	0	Box SPM3 Fig 1 (13-4) does not appear to clearly consider how geography can be a strong determinant of vulnerability - i.e. people living on river deltas are more sensitive to SLR than neighbour living on an elevated hard coast. All the power and socioeconomic factors in the diagram apply, for sure, and particularly if one wishes to consider why migration might not be an option. However, if the goal is for communities to remain in situ then the resolution of all the barriers suggested here will not withstand the potential for some areas simply to become uninhabitable. Sensitivity to climate change, beyond exposure, is more nuanced than this diagram suggests. Perhaps some reference to theories of change here (or in Fig SPM 2) might also be a useful adjunct to this Box if not already covered further into the report? Why is this a Box and not a Figure - as is the following diagram on p.31? (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2064	61945	SPM	34	0	0	0	Figure SPM 2 - interesting collection but would perhaps benefit from an accompanying comprehensive depiction of theories of change (Matthew Bunce, Institute of Marine Engineering, Science and Technology)	This panel is no longer included within the summary for policymakers.
2065	65386	SPM	34	0	0	0	figure SPM.2: It is suggested to include one additional level of governance: the regional scale. This is an important scale between national and international not only for 27 member states of the EU but also relevant for other areas e.g. CCCC in the Caribbean). (Klaus Radunsky, Umweltbundesamt)	This panel is no longer included within the summary for policymakers.
2066	65670	SPM	34	0	0	0	Figure SPM.2 -Figure legend no need for "Illustration of". (STEPHEN HAWKINS, UNIVERSITY OF SOUTHAMPTON)	This panel is no longer included within the summary for policymakers.
2067	67997	SPM	34	0	0	0	Boxes, figures and tables are crucial sources of information for policy makers and are often referred to in making policy decisions; thus the scientific soundness and containment of key policy relevant findings is critical. This figure is rather abstract and does not contain relevant in-depth information and is unlikely to be (not) useful in the policy making process; and therefore, we suggest it be deleted. (JAPAN)	This panel is no longer included within the summary for policymakers.
2068	68530	SPM	34	0	0	0	figure SPM.2 reads "efforts in adaptation CAN be", whereas Fig. 15-1, to which SPM.2 refers to, reads "NEED to be" (ch.15,p.52). (NETHERLANDS)	This panel is no longer included within the summary for policymakers.
2069	68531	SPM	34	0	0	0	Figure SPM.2: "Adaptation governance at multiple scales underlies capacity" UNCLEAR statement (NETHERLANDS)	This panel is no longer included within the summary for policymakers.
2070	63106	SPM	34	0	34	0	Figure SPM2 C: This figure is almost unreadable. I guess that the small cycles are the one given in part B of that figure. If so, then state this. And what is the meaning of the small crosses? If there is no meaning to them, I suggest to omit them. (Sabine Wurzler, LANUV NRW )	This panel is no longer included within the summary for policymakers.
2071	64006	SPM	34	0	34	0	Figure SPM.2: (A) Delete the boxes "Disaster Risk Management" and "Development" from the figure part. It is confusing that both terms are beside the steps of adaptation planning. The vertical arrows under the governance-bar are of equal size, but their relative importance is not, this should be visualized by their sizes. (C) It remains unclear why the adaptive space is widening in time (along the adaptation pathway). We think it should shrink. Please insert a dimensionless timebar below the figure to show the time dependency of the process. Rationale: In accordance to Ch 16 P 2 L 43-44 as well as Figures 22-7 and 26-6 the adaptation corridor should shrink in time as adaptation limits are a result of interaction between climate change and biophysical and socioeconomic constraints. If climate change likely aggravates at least during the era of climate responsibility the potential for adaptation to reduce risks will decrease or in other words the adaptive space may narrow. Figures 22-7 and 26-6 illustrate this narrowing by clear adaptation limits in a 4°-world in a lot of sectors. (C) The vertical variable of the adaptation pathway chart unclear. Are there any benchmarks for adaptation turning into maladaptation? (All) The relation between figures A and B should be clarified, a short description can foster the value of the figure and should be added (or use Figure TS.4). (GERMANY)	This panel is no longer included within the summary for policymakers.
2072	65023	SPM	35	0	0	0	Box Sum .4 Fig 1 This figure, on the surface clear, still needs a 19-line legend to explain it. Divide into two figures and simplify if possible. Your points will not get across if the reader or viewer needs to wade through a way too long legend. Break into two figures. Get rid of acronyms (CRU). (George Hunt, University of Washington)	Presentation of information within this figure has been very substantially simplified to enhance its accessibility.
2073	65383	SPM	35	0	0	0	Box SPM.4 Figure 1 - correct the spelling (substitute "U" by "P" in the caption) (Klaus Radunsky, Umweltbundesamt)	This correction has been made.
2074	69902	SPM	35	0	0	0	Box SPM. 4 Figure 1: Which CRU dataset does this use? Should be stated in figure caption. (John Caesar, Met Office Hadley Centre)	Precise referencing of the sources of all data is now provided, including references to the relevant figures within working group 1.
2075	69903	SPM	35	0	0	0	Box SPM. 4 Figure 1: Can it be indicated what number of CMIP5 models were used in these plots? (John Caesar, Met Office Hadley Centre)	To maintain simplicity of presentation within working group 2, this information is not provided within the figure, but further description of such relevant parameters can be found in the cited sources within working group 1 and working group 2.
2076	79029	SPM	35	0	0	0	Box SUM.4, Figure 1: There are no grey coloured areas identifiable in figure A. Please check whether the figure is printed correctly. If placed accordingly, the text can be given only once and then an explanation concerning the coloration (grey: only in figure B) could be included. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	All data in their categories have been clarified, checked, and revised, addressing these points.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2077	79874	SPM	35	0	0	0	BOX SPM4 Figure1: This Figure text is impossible to comprehend for policymakers. Please consider to simplify. There is also a reference to the "white circles", which we cannot see in the figures. Is this at all the correct texts for the figures shown? Ple (NORWAY)	Presentation of information within the figure has been very substantially simplified and clarified. Accuracy has been checked.
2078	57624	SPM	35	0	36	0	It should mention the model numbers. (ZONG-CI ZHAO, National Climate Center)	To maintain simplicity of presentation within working group 2, this information is not provided within the figure, but further description of such relevant parameters can be found in the cited sources within working group 1 and working group 2.
2079	62661	SPM	35	0	36	0	Box SUM.4 Figure 1. Comment: Firstly, these figures are labelled erroneously. Change SUM to SPM. Secondly, the legends on page 35 and 36 are confusing because they are exactly the same! Suggest that they modified so that the legend for Figure A (p35) refers only to the figure on that page. E.g. " Box SPM4 Figure 1(A). Changes in annual average temperature. For observations .... ", and similarly for Figure B (p36) (Anirudh Singh, University of the South Pacific)	Labeling has been corrected, and captions and legends clarified. Additionally, precipitation data are no longer presented within the summary for policy makers.
2080	64007	SPM	35	0	36	0	Box SUM.4, Figure 1: It is not clear why a purely "WG1" chart of warming and precipitation changes should be included in the SPM of WG2. The cooperation of the two WGs is highly welcome, but information on changes in the physical system is presented in WGI, and only limited information should be repeated by WGII, especially in its SPM given the limited space. Please delete this figure and refer to the WGI report. It seems more warranted to add charts of global impacts at various levels of warming, e.g. Freshwater systems, or ecosystem/biome changes, NPP changes. In addition, the information provided in the figure is not explained in the text, and the caption is very technical and out of context. This makes it hard to understand for policymakers. (GERMANY)	The presentation of information within the figure has been substantially improved to provide a clear entry point to the working group 2 assessment, grounding it in the relevant climate information.
2081	67998	SPM	35	0	36	0	White dots in the (A) and (B) of Box SUM.4 Figure 1 are hardly visible although the information indicated by these dots is quite important. The figures should be improved in this aspect. (JAPAN)	Clarity and accuracy of information across categories has been ensured.
2082	70627	SPM	35	0	36	0	Box SUM.4 Figure 1: The explanation of the figure is very difficult to understand. From a policy-makers perspective the text needs to be much clearer if the figure is to be of any use in a policy context. (NEW ZEALAND)	Clarity of the legend and caption has been greatly improved.
2083	77279	SPM	35	0	36	0	Somewhere needs to indicate which CMIP5 models were used (presumably all the coupled ones with a historical simulation available at a particular date). If there's a point I didn't notice that says "All CMIP5 multimodel analyses here use..." then please reference it here, the first place such results are shown! (William Ingram, Met Office)	This figure serves as an entry point and summary. Please see the referenced chapter sections within working group 1 and working group 2 for further detail in support of data presented here.
2084	77280	SPM	35	0	36	0	The "baselines" are unfamiliar in nature to me & seem rather odd. Why use different periods for the observations & the projections, the latter potentially including a significant amount of climate change (dominated by climate change for models with enough realizations if these are averaged before the standard deviation is calculated, which was my best guess from the current text here, though page 59 of Chapter 21 makes plain that was not done - this needs to be clear here!)? Why calculate the "standard deviation" of sequences where by construction there is very little change from one to the next? I assume the standard deviations are rough estimators of half the standard deviation of independent 20-year periods - shouldn't this be made clear, as a careless reader might think they estimated the standard deviation of independent 20-year periods so that twice them was about a Gaussian 5%? (William Ingram, Met Office)	The reference baselines used here match convention within the working group 1 assessment.
2085	77281	SPM	35	0	36	0	Shouldn't the very general "model" be replaced with "GCM" or "AOGCM" for clarity to, well, policy-makers? And indeed CMIP5 briefly explained & referenced? (William Ingram, Met Office)	Presentation within the summary for policy makers focuses on brevity and clarity. Much more extended information can be found in the cited sources within the working group 1 and 2's underlying assessment.
2086	79305	SPM	35	0	36	0	BOX SUM.4 FIGURE 1B: should figure caption read "SPM" and not "SUM". (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This typo has been corrected.
2087	61833	SPM	35	1	0	0	Figure SPM.4: The legend to this figure is long and complex. Most of the caption applies to the precipitation (B) and not the temperature (A). It may help to simplify the caption to the temperature figure, or to provide the caption only once. Another option may be to show the temperature figures in the left column and precipitation figures in the right column. This would help the reader appreciate the relative uncertainty in the expected precipitation change (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Precipitation is no longer included to simplify presentation.
2088	63363	SPM	35	1	35	1	Typo in caption to Box SPM Figure 1. "SPM" in labelled "SUM" the figure cannot be found in a search due to the typo. (IRELAND)	This typo has been corrected.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2089	61832	SPM	35	1	36	0	Box SUM.4 Figure 1: The legend is too extensive to follow. Consider minimizing the information provided to the most critical/important ones (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Accessibility has been enhanced through improved legends within the figure, and the amount of information presented has been reduced to the essentials.
2090	61834	SPM	35	1	36	0	These figures needs to present information for all RCPs. Where is the relevant plot for RCP2.6? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Data are now given for RCP 2.6.
2091	64008	SPM	35	1	36	0	Box SUM.4, Figure 1 (if not deleted): 1) The baseline period should be pre-industrial and not 1986-2005 to allow comparability with the 2C objective and increase consistency across reports, 2) the figure is too complex with too much details please provide more focused information, 3) the caption is too long and too difficult, please simply and explain acronyms (e.g. CRU, CMIP5), 4) short headings ("observations", "projections") should be added to each plot to know at first glance what is shown, 5) a legend showing the symbols ("colors with circles") and colors ("gray indicates...") referred to in the description should be added to facilitate understanding without reading the caption repeatedly. (GERMANY)	Global mean temperature change is now given, partially addressing the 1st concern raised. Accessibility of information has been enhanced through clearer legends within the figure, precipitation is no longer plotted, and fewer projection panels are included. Labeling is also substantially improved.
2092	60335	SPM	36	0	0	0	Box SUM.4: The white circles, indicating agreement between models are difficult to see, especially when background colours are light. Use grey circles instead. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	Clearer conventions in symbols used have been achieved, although white circles are still used.
2093	65384	SPM	36	0	0	0	Box SPM.4 Figure 1 - correct the spelling (substitute "U" by "P" in the caption) (Klaus Radunsky, Umweltbundesamt)	This typo has been corrected.
2094	65385	SPM	36	0	0	0	Box SPM.4, B: it seems difficult to distuigish between white and grey areas. (Klaus Radunsky, Umweltbundesamt)	Improved symbols enhance visibility of contrast across categories.
2095	60336	SPM	37	0	0	0	Figure SPM.3: Replace "Rate of Climate Change" with "Rate of Temperature Change" on axis notation, as climate and temperature are not the same. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This subpanel is no longer included. Please see Figure SPM.5.
2096	60337	SPM	37	0	0	0	Figure SPM.3: The term velocity implies a vector notion. I suggest to use rather "Climate displacement". (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	The term climate velocity is now defined in the report glossary. Please see Figure SPM.5.
2097	60338	SPM	37	0	0	0	Figure SPM.3: Please indicate what the ranges of "rate displacement" on the right-hand graph indicate (i.e. median and percentile ranges) (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This phase is now further clarified. Please see Figure SPM.5.
2098	62702	SPM	37	0	0	0	Figure SPM.3 is an interesting figure. According to the figure, historical increase rate corresponds nearly to that of RCP6.0. At least, RCP4.5 is lower than the historical increase rate. The comparisons between the historical increase rate and the estimated displacement rate and between the historical increase rate and the rate of RCPs should be also discussed. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	The implications of climate velocities across the RCPs are now further illustrated within the figure. Please see Figure SPM.5.
2099	64009	SPM	37	0	0	0	Figure SPM.3: General comments: The figure as well as the explanatory text are relevant to link the SPM content to UNFCCC Art. 2, approach to portray rates of change in addition to total warming is much appreciated. The figure in its current form is however very hard to understand and must be simplified to increase readability. All plots are too small, please provide more space to this important figure. Please specify the base year for the temperature change is it above present, or "above preindustrial". Figure A: The horizontal year-axis is too narrow, could possibly start at 1950 (but T-increase must be shown wrt pre-industrial conditions). The black lines are not clear, there should be less. What are RCP26low and RCP85high, can they be omitted? Uncertainty ranges must be indicated for T-increases. You may consider to showing observed and modelled ranges of T-change. Figure B: The heights of the three vertical axes should be aligned with the top of figures A and C, and the zero-lines should be at the same level. The information shown for climate velocity is not intuitive, since the scales of the three axis are not the same but the lengths are (i.e., no graphical representation of the different speeds). Are velocities related to ground speed or to shift in heights levels of climatic zones in the case of mountains? The meaning of the three axes incomprehensible and the red arrow does not help, please explain in detail and reduce complexity. Figure C: The boxes depicting the rates of displacement for selected species are not clear: how are the upper and lower bounds calculated? Are the fat lines median or average? Caption: The link between the three figures must be explained, the red arrow is not helpful and should be deleted. The text in the caption should be limited to explanations on the graphs, discussions of the results from the figure should be moved to the main text. To the para stating "... in mountainous areas with low climate velocities, species would only need to move short distances upslope to track a warming climate" please add: "An important exception is for species that are already at the tops of mountains (or near other boundaries) - they are among the most threatened by climate change because they cannot move upwards" (citation from Ch 4 P 30 L 4 -5). (GERMANY)	The figure has been very substantially simplified, with only a single panel included now. Please see Figure SPM.5.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2100	65024	SPM	37	0	0	0	Figure SPM.3: Again, complex and non-intuitive- thus the need for a 17 line legend. (George Hunt, University of Washington)	The figure has been very substantially simplified, with only a single panel included now. Please see Figure SPM.5.
2101	65832	SPM	37	0	0	0	Figure SPM.3 is an interesting figure. However, it seems to be feeble for considering developments of new species and their values. The limitation of this assessment should be added. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	It is not clear what this comment is referring to. As perhaps may be relevant, the underlying chapter provides assessment of introduced and invasive species in the context of climate change. Please see Figure SPM.5.
2102	67999	SPM	37	0	0	0	Fig.SPM3 : This figure is very important and valuable figure with new evaluation method. It is better to maintain it. However the contents and caption seems to have inconsistency. Figure SPM 3 (A) indicates that the rate of climate change already have higher value for the last 20 years than the highest value for changing rate of RCP 4.5, and RCP 4.5 basically follows the RCP 2.6, after a few ten years. Furthermore, when we assume the Flat areas, Rate of displacement is smaller than the rate of climate change for the last 50 years. So, it is questionable if there are intrinsic difference between RCP 4.5 and 2.5 for Rate of displacement. However the caption describes RCP 2.6 as if only the safe scenario. I think at least RCP 4.5 and 2.5 should be treated as with the same way unless the 30 years difference are expected to have obvious difference, because both of them have exceeds the capacity . As the matter of the fact, RCP 6.0 still does not exceed level of the current "rate of climate change". Further more, if we assume the flat areas, the rate of displacement have been over 3 km/yr. for the last 50 years, and would be able to assess the rate of climate rage effects even now. However, the caption only describes RCP 2.6 and 8.5 seems to be a too much simplified, and assessment up to which RCP scenario, the eco-system stay-up is important. Actually the mitigation cost for RCP 2.6, 4.5 and 6.5 is quite different as had shown in Chapter 6 of WG3. (JAPAN)	Implications of different RCPs scenarios are now further highlighted within the figure's improved layout. Interpretation of the figure is also further clarified through text introducing it within the summary for policymakers. Please see Figure SPM.5.
2103	68532	SPM	37	0	0	0	Figure SPM3. The dimension/unit of displacement (km/yr)? Is not completely clear. E.g. displacement in terms of latitudinal shifts or in some other manner?? (NETHERLANDS)	A further clarified description is used for this axis, with complete information available in the underlying chapter sections. Please see Figure SPM.5.
2104	71030	SPM	37	0	0	0	Fig SPM.3: Suggest adding an explanation to the legend for the temperature changes associated with the four RCPs on panel A (4.2, 2.4, 1.9 and 1.0 degC). (CANADA)	These details are no longer included within the summary for policy makers. Please see Figure SPM.5.
2105	77547	SPM	37	0	0	0	SPM.3: replace the word "track" with "adapt" (SWITZERLAND)	These details are no longer included within the summary for policy makers. Please see Figure SPM.5.
2106	78197	SPM	37	0	0	0	Figure SPM.3's graph is hard to read as the x axis is too narrow. It is hard to follow the observed, historical, historical low and historical high lines as they overlap due to the axis being squished. Also, it is hard to distinguish between the historical low and historical high lines. (Andrew Wong, University of Waterloo)	Presentation of information has been very substantially simplified and improved, with panel A no longer included within the summary for policy makers. Please see Figure SPM.5.
2107	79030	SPM	37	0	0	0	Figure SPM.3: Please consider altering figure A. It is overly complicated. If the bounds for temperature reconstruction were given a s a broad, coloured or grey-shaded band, one would not have to distinguish "broad, black, solid" from "broad, black, dotted" and "black, solid, thin" simultaneously. Also, using "historical" to indicate reconstructions is not advisable. "History" implies "has been" and will most surely be interpreted by most readers as "observed", too. With regard to panel B, please explain the concept of "climate velocity" when you first mention this term. Climate itself has no apparent velocity, and the concept you use here is correlated to the speed of climate change. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	The figure has been very substantially simplified. Climate velocity is now defined in the glossary. Please see Figure SPM.5.
2108	79306	SPM	37	0	0	0	Figure SPM3 - can they include humans? Where are we on this scale of migration and survival at increasing temperatures? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Humans are not included in the assessment of chapter 4. Please see Figure SPM.5.
2109	79875	SPM	37	0	0	0	Figure SPM. 3. This is a very illustrative figure. Please consider to use another wording than " track" as it seems a little odd word to use. Also, to the right in the left-hand figure there are some numbers given (+1.0, 1.9, 2.4 and 4.2 degrees Centegrad (NORWAY)	The word is no longer used, and the left-hand panel no longer included in the summary for policy makers. Please see Figure SPM.5.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2110	63107	SPM	37	0	37	0	Figure SPM3: The black dotted line is almost invisible. This figure is very confusing. It took me a while to find out that the numbers given at the ordinate axis have nothing to do with the curves in the figure, which represent the results of the RCP scenarios. You should explain the link between the curves and the values at the ordinate. I think you squeeze too much information into one graph. I suggest to give first the well known plot of temperature difference in relation to reference period including 1 °C, 1.9°C, .... Then give a plot with the rate of climate change without those numbers and then B and C. You should make 2 figures out of that one. Is there a reason why the median is missing for the mollusks? (Sabine Wurzler, LANUV NRW )	These points have been addressed through presentation of a single simplified panel. The median for freshwater mollusks is now given. Please see Figure SPM.5.
2111	77283	SPM	37	0	37	0	(A) cannot be for global land areas as stated in the caption as there is only 1 curve for each case. I expect it shows the average over all land. (William Ingram, Met Office)	This panel is no longer included within the summary for policymakers. Please see Figure SPM.5.
2112	77284	SPM	37	0	37	0	Line 4 of the caption needs "also" after "is" as at present it implies this is all that it plotted for those RCPs. It also needs to say how these bounds are estimated. (William Ingram, Met Office)	These data are no longer included within the summary for policymakers. Please see Figure SPM.5.
2113	79307	SPM	37	0	37	0	SPM 3. It isn't possible to look at the figure and understand what it is telling you - you have to read through the full legend. We would like to see this simplified so the figure is more accessible to the lay reader and policymaker. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The figure has been very substantially simplified to improve its interpretation and accessibility. Please see Figure SPM.5.
2114	85131	SPM	37	0	37	0	Figure SPM.3 require enhancement on its colour usage, particularly its lines (curves of the graph) used and its background, to ensure a clearer CC scenarios under the different RCPs. (MALAYSIA)	This panel is no longer included within the summary for policymakers. Please see Figure SPM.5.
2115	61835	SPM	37	1	0	0	Figure SPM3: Colour legend for the ability of species to track changes seems to be wrong (written "cannot" instead of "can") (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This panel is no longer included within the summary for policy makers. Please see Figure SPM.5.
2116	63364	SPM	37	1	37	1	Label on x-axis on graph C, "rate of displacement" could misleading, it implies that this is the rate at which animals and plants are currently moving in response of climate change. The figure appears to represent the potential rates at which these various flora and fauna can adapt by natural relocation. Suggested alternative "Potential Rate of Natural Relocation" Also the location of the icon for birds implies they have less adaptive capacity than insects, and large mammals. Is this the intent? It might give the false impression that because the majority of species (within most groups) have relatively good adaptive capacity, there is no great need for concern. (IRELAND)	The phrase used has been improved to enhance clarity. Please see Figure SPM.5.
2117	57627	SPM	38	0	0	0	Figure SPM.4 indicated the SRES scenarios. Is it possible to give CMIP5 with the RCPs scenarios? Because it is AR5 WG2 SPM. (ZONG-CI ZHAO, National Climate Center)	A single panel based on projections using an SRES scenario is still included. Many of the impacts assessed within this report are based on SRES projections, given available literature. Please see Figure SPM.6.
2118	65025	SPM	38	0	0	0	Figure SPM.4: Seems like three figures; in C, legend in yellow box at top says that there will be a large increase in boreal species, and coloring in B suggests an increase in catch potential. At least from the eastern Bering Sea, Coyle et al 2011 and Hunt et al. 2011 both predict declining catches of waleye pollock, a major fishery. (George Hunt, University of Washington)	Assessment of impacts for each ocean basin are provided in detail, based on available literature, within Chapter 30. The data plotted within this fishery catch potential analysis do not encompass all of the available literature, rather presenting an important example of available projections. Please see Figure SPM.6.
2119	68155	SPM	38	0	0	0	Figure SPM.4 (B) contains a world map with national borders. It is suggested to use a map without borders to avoid unnecessary disputes. (CHINA)	Borders have been removed. Please see Figure SPM.6.
2120	68533	SPM	38	0	0	0	Figure SPM.4.C. The Caspian probably needs to be classified as "semi-enclosed" and not as "arctic". (NETHERLANDS)	This panel is no longer included. Please see Figure SPM.6.
2121	68534	SPM	38	0	0	0	Figure SPM.4.A. We suggest to write out "ΔPP" to "change in primary biomass production" (NETHERLANDS)	This panel is no longer included. Please see Figure SPM.6.
2122	68535	SPM	38	0	0	0	Figure SPM.4.B. We are not sure the reader will understand this figure does not include the impact of current overfishing. (NETHERLANDS)	Clarification is now provided within the figure caption. Please see Figure SPM.6.
2123	68536	SPM	38	0	0	0	The legend caption on Figure SPM.4 B has the word 'potentia' it should read 'potential' - looks as though the figure legend has been cut off a little. (NETHERLANDS)	The legend is now complete. Please see Figure SPM.6.
2124	70360	SPM	38	0	0	0	Figure SPM.4. Use an equal-area projection to accurately present the world. The current map inaccurately portrays surface areas and the relative areas of land and sea and of various continents with one another. (Patrick Gonzalez, National Park Service)	Improved projections are now used. Please see Figure SPM.6.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2125	71031	SPM	38	0	0	0	Fig SPM. 4: (C) Suggest making more clear that this figure is about future impacts. (CANADA)	This panel is no longer included. Please see Figure SPM.6.
2126	76219	SPM	38	0	0	0	Figure SPM.4 (A) Comments - It's hard to tell with the resolution of the PDF document are negative changes in NPP to the left? Why is the scale labeled APP (or is it delta PP)? (UNITED STATES OF AMERICA)	This panel is no longer included. Please see Figure SPM.6.
2127	76220	SPM	38	0	0	0	Figure SPM.4 (C) - An indications of confidence and uncertainty are needed. (UNITED STATES OF AMERICA)	This panel is no longer included. Please see Figure SPM.6.
2128	78199	SPM	38	0	0	0	Figure SPM.4 B's colour interval for 30-50 and >50 are too similar. The >50 blue should be darker. (Andrew Wong, University of Waterloo)	Improved color intervals are now used. Please see Figure SPM.6.
2129	79032	SPM	38	0	0	0	Figure SPM.4, panel B: Please use equal size classes above and below zero. For example, why do the first classes span 9 % in positive but 14% in negative direction? (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	Symmetry has been improved. Please see Figure SPM.6.
2130	64010	SPM	38	0	38	0	Figure SPM.4.: General comments: The link between A, B, and C needs to be explained in the text for this figure to be useful. Where can information about the SRES scenarios A2 and A1B be found and how does it link to the RCPs? Figure TS.7 uses SRES scenarios B2 and A2 be found: it would be good to use the same scenarios at least across the TS. Please harmonize the reference time period in A, B, and C. A: Not sure to which extent data from the period 1870-1889 are reliable. Confidence in these data should be indicated. B: Are projections for changes in catch potential only considering changes due to climate change or are other drivers (such as overfishing) also considered for projections? The caption does not mention changes in catch potential, but the legend does - what is shown? C: Is this observed or projected changes (or both)? A/B: Unfavorable choice of colors in (A) and (B). In (A) the red color is representing regions with increasing trend of net primary production. In (B) a decreasing trend of maximum fish catch potential is represented by the same color. (GERMANY)	Panels A and C are no longer included. Further explanation of the fishery catch potential analysis, within the figure caption, explains that potential impacts of overfishing are not included. In general, assessment across the report must rely on more than one set of scenarios given the available literature. Please see Figure SPM.6.
2131	77285	SPM	38	0	38	0	The maps are all blank over land. I suspect this is intended & the caption should say "oceanic NPP". (William Ingram, Met Office)	Panel A is no longer included. Please see Figure SPM.6.
2132	77286	SPM	38	0	38	0	The stippling most evident in A is over land. There is clearly a problem with the coastline dataset as the figure appears here. Ah, I see page 42 is also affected. (William Ingram, Met Office)	Panel A is no longer included. Please see Figure SPM.6.
2133	77287	SPM	38	0	38	0	"potentia" should be "potential" (William Ingram, Met Office)	This has been corrected. Please see Figure SPM.6.
2134	77288	SPM	38	0	38	0	The caption for C should be more explicit - occurring when? (I appreciate the evidence may be from different periods in different places, but at least indicate that & the general period & refer to wherever the detail is.) (William Ingram, Met Office)	This panel is no longer included. Please see Figure SPM.6.
2135	61836	SPM	38	1	0	0	Why does this figure use results from A1B? Almost all of the rest of the SPM uses the RCPs. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Literature assessed throughout the report relies on multiple sets of scenarios, which is reflected in findings and figures included within the summary for policymakers. Please see Figure SPM.6.
2136	61837	SPM	38	1	0	0	Figure SPM4. Propose to change colour scheme - green now suggests "safe" while it reflects a decrease in productivity? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Panel C is no longer included. Please see Figure SPM.6.
2137	78137	SPM	38	1	0	0	Figure SPM4 (A) could be redraw to fit the continents orientation of part (B) and (C) (Christiano de Campos, Petroleo Brasileiro SA)	Panel A is no longer included. Please see Figure SPM.6.
2138	57626	SPM	38	1	38	5	"Multi-models", it should provide the model numbers. (ZONG-CI ZHAO, National Climate Center)	Panel A is no longer included. Please see Figure SPM.6.
2139	60339	SPM	39	0	0	0	Figure SPM.5: Please replace the notation A,B,C by the areas involved, i.e. Africa, Europe and North America (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This figure is no longer included within the summary for policymakers.
2140	60340	SPM	39	0	0	0	Figure SPM.5: Explain why some triangles are left white (not enough information, no risk?) (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This figure is no longer included within the summary for policymakers.
2141	60341	SPM	39	0	0	0	Figure SPM.5: Please add also a temperature indication for the 2030-2040 graph. (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This figure is no longer included within the summary for policymakers.
2142	61838	SPM	39	0	0	0	Figure SPM.5: In the Panel (A) for Africa, it is not clear why all risks except those for human security do not increase from the present risk level (shown) by the blue line in 2030-40 even with low adaptation (as shown by the violet marks). This finding is rather counterintuitive and surprising. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2143	65026	SPM	39	0	0	0	Figure SPM.5: This is a nice figure, but perhaps too long for a summary document. Maybe choose one climate scenario and put all three regions on same page. Also, there is not only a difference in shading, but also a difference in color. What do the different colors mean? (George Hunt, University of Washington)	This figure is no longer included within the summary for policymakers.
2144	66111	SPM	39	0	0	0	Figure SPM.5 I think that it is a very good idea and quite illustrative to present the risks of warming of 2 and 4 degrees and the two eras of climate responsibility and options in a Figure like SPM 5. However, the Figure SPM 5. is a bit difficult to understand and would need more explanation. For example, in Figure A, in the first part (2030-2040) and for Human Security, future risks (grey area) with low adaptation are quite high. Then in the 2 degree world (2080-2100) for Human Security the potential for adaptation to reduce risks (yellow area) is larger and the future risks smaller than in the 2030-2040 world. One would think, though, that in the first case (2030-2040) the risks would be smaller and potential for adaptation larger, as the warming is (in any case) less than at the end of the century. Maybe I have understood the figure quite wrong, but in that case it just shows how easy it is to misunderstand the Figure SPM 5. It is also unclear if the different colors have a different meaning (of level of risk for example) or if they only illustrate the different time periods and/or levels of warming. Also, I think it would be useful if it were explained somewhere why the era of responsibility is just 2030-2040 (and not, for example 2020 - 2040) and why here the era of options is 2080 -2100 and not 2050 - 2100 as it is in Table SPM 4. (Susanna Kankaanpää, Helsinki Region Environmental Services Authority (HSY))	This figure is no longer included within the summary for policymakers.
2145	68002	SPM	39	0	0	0	Figure SPM5: This figure compares estimated risk of climate change of +2 degree C and +4 degree C. On the other hand, the allowances for carbon emission are largely different even between 2.5 and 3 degree C, and the difficulty of mitigation depends on the amount of carbon emission. Therefore please add the climate change effects of 3.0 degree C. If the sensitivity of climate change effects are not enough for addition of 3.0 degree, please describe that the sensitivity is not enough for compare the difference 2, 3, 4 degree C. (JAPAN)	This figure is no longer included within the summary for policymakers.
2146	68003	SPM	39	0	0	0	Figure SPM.5.: The figure only discusses Africa, Europe and North America and should include Asia as well, as risks are varied among regions, and the Climatic variability of Asia should be taken into account. It is also important for policymakers to understand risks estimated for the mid-term, or the period in between the era of climate responsibility (2030-2040) and era of climate options (2080-2100); and therefore, a figure should be included for global average warming of 3 degrees Celsius above preindustrial. Furthermore, given the diversity of regional risks and effective adaptation, the risk levels provided relate to different phenomena and adaptation choices are difficult to compare; and therefore, the figure should be revised to provide examples of the projected risks and adaptation choices considered in producing the figure and to include comparable numerical values. The ideas represented by the figure may be better presented in the form of a comparison chart or table along with current figures. (JAPAN)	This figure is no longer included within the summary for policymakers.
2147	68537	SPM	39	0	0	0	Figure SPM.5. Explain the meaning of the colors purple - yellow - red. Explain how the adaptation potential can be both below and above the present risk level. (NETHERLANDS)	This figure is no longer included within the summary for policymakers.
2148	68538	SPM	39	0	0	0	Graphs are pretty difficult to understand! First the reader does not understand why 2030-2040 has only one circle and not two, as for 2080-2100. Second, it is difficult to understand what pies mean which are completely white? Is it because not data are alike? Third, it seems as if the grey tones of risk levels will be different for each piece of the pie chart. But isn't. Third, the information is three dimensional, right? Present levels, future risk with low adaptation and future risk with high adaptation. Finally, do the colours orange, red etc. mean anything or just colours? Finally: the information has a strong qualitative character, it is a high level assessment of information from Chapters. Now, we have no idea on uncertainties of all lines in each part of the pie chart. (NETHERLANDS)	This figure is no longer included within the summary for policymakers.
2149	68539	SPM	39	0	0	0	Figures SPM.5 A corresponds to Africa. The reference in the caption to Figures 22-7 and 26-6 is incorrect. Chapter 26 (and Figure 26-2) corresponds only to North America. This reference should be removed from this caption. (NETHERLANDS)	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2150	71032	SPM	39	0	0	0	Fig SPM.5: These Figures are potentially valuable, but will require substantially more explanation in the caption to help readers understand them properly. Specifically, the caption for the figure needs to explain: 1 - the significance of blank or empty slices - does this mean that these are not risks in that region, that they are risks but were not assessed in the related regional AR5 chapter, or that there is not enough literature to even apply expert judgment? A quick check of the Africa regional chapter's executive summary showed conclusions related to risks to coastal and ocean systems and yet these areas are blank in Figure SPM.5 A (Africa); 2 - the significance (if any) of the colouring (purple, gold and red); and 3 - whether general criteria were used to guide expert judgment that in turn would allow for comparison between regions. An expanded caption should also walk the reader through a couple of examples (as was done effectively in Fig SPM.3). In addition, as per general comments on the phrases "era of climate responsibility and climate options", suggest deleting use of these terms in this Figure. (CANADA)	This figure is no longer included within the summary for policymakers.
2151	76221	SPM	39	0	0	0	Figure SPM.5 Comments - This figure is hard to read. First, it's hard to tell how high up on the axis the risk levels fall. Does the "present risk level" blue line sit at the top of the wedge of "potential for adaptation to reduce sectoral risk," then future risk with low adaptation is equal to present risk level? If there is a certain scope for adaptation, why isn't it plotted beginning at the top of the grey wedge of risk levels? It seems to imply that people can only adapt to lower levels of risk, and the highest levels are unavoidable. Is that correct? Only shading for risk is shown, not for adaptation. And the red lines don't appear on the legend. What do they mean? At some point the difficulty of interpreting a figure outweighs its value. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers.
2152	76222	SPM	39	0	0	0	Figure SPM.5 Comments - This figure makes no sense - it is too descriptive and subjective. It does not add value to the text, if anything it is confusing. We recommend that it be removed. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers.
2153	78464	SPM	39	0	0	0	Figure SPM.5: Why are some categories blank? (Dáithí Stone, University of Cape Town)	This figure is no longer included within the summary for policymakers.
2154	79876	SPM	39	0	0	0	Figure SPM5: These figures encompass a lot of information and the idea behind is very good. But some of the information do not seem to be explained in the figure text, for instance: Please indicate a year for "present" (the report will live in many years (NORWAY)	This figure is no longer included within the summary for policymakers.
2155	79877	SPM	39	0	0	0	Please consider to include Figure TS 14 here since it illustrates well the risks and vulnerabilities in the oceans. (NORWAY)	This figure is no longer included within the summary for policymakers.
2156	78108	SPM	39	0	39	0	Fig. SPM 5: the meaning of color shading is confusing, explanations for interpretation in legend are not sufficient, a full reading example would help undertans how to examine the figures (Philippe MacClenahan, Synergies Environnement)	This figure is no longer included within the summary for policymakers.
2157	59799	SPM	39	0	41	0	An explanation should be given in captions as to why some quadrants of the wheels are completely blank. (AUSTRALIA)	This figure is no longer included within the summary for policymakers.
2158	62662	SPM	39	0	41	0	Figure SPM5: Comment: As for above. The figure on p39 is only for Africa. Its legend should refer to Africa only, via a label such as "Figure SPM5 (A)", and similarly for parts B and C. Clarity is forfeited if we don't do this. (Anirudh Singh, University of the South Pacific)	This figure is no longer included within the summary for policymakers.
2159	62703	SPM	39	0	41	0	Figure SPM.5 shows only the comparison of impacts and adaptations between 2 and 4 degrees C. However, from the mitigation viewpoints, there are big differences between 2 and 3 degrees C and even between 2 and 2.5 degrees C. The comparison between 2 and 2.5 degrees C or between 2 and 3 degrees C is much more important and useful for policy making. Please add the assessment for 3 degrees C at least (and 2.5 degrees C if possible). (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2160	62704	SPM	39	0	41	0	Figure SPM.5: not just write "Expert judgment" but should write "Expert judgment by the lead authors of Chapter X". (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2161	64011	SPM	39	0	41	0	Figures SPM.5 A-C are profoundly policy relevant, the intention to present risks for different sectors and systems for different scenarios and levels of adaptation seems to be extremely useful. However, the graphics and caption needs significant improvement, the figures are too complex and it is not clear what they exactly mean: 1) How are the risk levels scaled, it is not clear what the definition/reference for "risk" is in these charts, and therefore to what the qualifiers ("high" or "low" refer), and how they compare between sectors. Portrayed in that format, the impression is invoked that equal values (e.g. high, or low) would constitute comparable risks, however, there is no analysis or explanation underpinning that. 2) An explanation of the blue line like should be added: "The present risk level in each wedge given by a blue line shows the current span to a sector specific threshold, where 'planetary boundaries' may be crossed", and a reference to Figure TS.16 would be helpful. The different coloring of text indicating the sectors around the circles is not obvious, please explain. 3) Explain in the legend "When the adaptation potential is given by a narrow line at the outer edge of the wheel (or wedge) the risk cannot be diminished by adaptation." (This is very policy relevant information!) 4) What happens if the risk level crosses the outer bound, will the risk become reality? The well-known planetary boundary figure by contrast has defined "endpoints" as outer boundaries, and progression towards those constitutes higher risk. Without such boundaries, it is difficult to comprehend what the format is supposed to convey. Please explain in the caption. 5) The current choice of sectors implies significant overlaps, which poses challenges to a consistent portrait of risk. This applies for example for issues discussed within human security, livelihoods and poverty, rural and urban areas, and human health, based on complex definitions). This poses challenges to a consistent portrait of risk. 6) Adaptation is mostly an issue for managed systems and applies less to the natural systems, like Oceans, and Ecosystems, so the value of portraying the range of options with and without adaptation may be limited. 7) Please do not use purple, orange and red, but the same color for the adaptation potential within the three different worlds (E.o. responsibility, +2°-+4° world). This color should be the same as in the Figures Box.SPM6-Figure 1 and in Table SPM.4. 8) Risk levels are not allocated to all sectors addressed; will the sectors that are empty now be filled later? In the absence of an explanation the reader might come to the conclusion that the sector in question is irrelevant. A short note why risk levels are not illustrated for all sectors is needed. If the reason is, that no information is available, these wedges could be stippled, to avoid confusion with low-risk-zones. 9) Please add headings to A, B, C, in order to understand their difference ("Africa" on p. 39, "Europe" on p. 40, "North America on p. 41). Why are the other world regions missing? Please add more regions, if not possible, please explain the reason. 10) Please specify to which time period the "present risk level" refers to - risk in 2013 or risk in the respective future area assuming no adaptation from 2013 levels? To which period of time does the change in temperature (+2°/+4°C) relate to, does "+2°" mean a temperature 2° warmer at the end of 2100 or at which year? In addition, the time frame for the era of climate options is 2080-2100 in this figure, but table SPM.4 uses 2050-2100 - please be consistent. 11) Please use the same descriptions for North America and the other regions ("Freshwater resources" instead of "Water resources & management", "Terrestrial ecosystems" instead of "Ecosystems & biodiversity", etc.). 12) Maybe it would be wise to start the figure with a region, where most information is available (e.g. N-America). This would ease the understanding of the methodology of the figure. (GERMANY)	This figure is no longer included within the summary for policymakers.
2162	65393	SPM	39	0	41	0	Figure SPM.5: In order to improve clarity it is suggested to explain the empty fields for risk levels. Again it would be helpful to inform about the criteria for selection of risk categories. Furthermore it would be helpful to explain the term risk category, e.g. in the glossary. (Klaus Radunsky, Umweltbundesamt)	This figure is no longer included within the summary for policymakers.
2163	65394	SPM	39	0	41	0	Figure SPM.5: In order to improve clarity it is suggested to better explain the function of the three colours. (Klaus Radunsky, Umweltbundesamt)	This figure is no longer included within the summary for policymakers.
2164	65833	SPM	39	0	41	0	Figure SPM.5 is an interesting figure. However, the careful description is necessary. The definition of the risk levels should be explicitly mentioned. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2165	65834	SPM	39	0	41	0	Figure SPM.5: Who are the "experts"? It should be explicitly mentioned like that "the lead authors of Chapter X". (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2166	65835	SPM	39	0	41	0	Figure SPM.5: Difference of assumptions between low and high adaption cases should be mentioned. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2167	65836	SPM	39	0	41	0	Figure SPM.5: What do the blanks mean ? (for human health and coastal systems in Africa, Ocean systems, and etc.) (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2168	65837	SPM	39	0	41	0	Figure SPM.5: This figure shows risks for only two levels of global warming (2 and 4 degree C) in 2080-2100. From the view point of GHG emission reduction, the required efforts will be largely different between the levels of 2 and 4 degree C, and the information on the warming levels such as 2.5, 3 and 3.5 degree C is also important. Figures for these warming-levels are required to be added, if possible. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2169	66082	SPM	39	0	41	0	Figure SPM.5. This figure should be deleted because of terminological and conceptual difficulties: these diagrams are not consistent with the principles or terminologies of the Convention. The terms "era of climate responsibility" and "era of climate options" are very complex, they create questions rather than answers. The treatment of the concept of peaking is also problematic and too prescriptive. We feel that these concepts should be further explored within the scientific community before they find their way to the SPM. (FINLAND)	This figure is no longer included within the summary for policymakers.
2170	66143	SPM	39	0	41	0	Figs 4 and 5 are: a) very detailed, too difficult to understand for policymakers and b) need a text to summarise main conclusions, and c) why for 3 regions and not others? It might be better best to put these figures in the TS only and omit from the SPM (Martin Parry, Imperial College)	This figure is no longer included within the summary for policymakers.
2171	66144	SPM	39	0	41	0	Fig 5: what do orange and red colours mean? (Martin Parry, Imperial College)	This figure is no longer included within the summary for policymakers.
2172	66289	SPM	39	0	41	0	Figure SPM.5: I found these figures to be tricky to interpret. The colour scheme of the segments is not explained. Otherwise, as I commented earlier for Table SPM.4, I am particularly concerned about the labelling of future periods as "Eras" of "climate responsibility" and "climate options", which I find to be overly prescriptive, as well as being arbitrary (in the choice of time periods) and open to potential misinterpretation as well as mistranslation (into other languages). I didn't find any explanation of these labels, and there's nothing in the glossary. Is there anything of this kind in the literature? (Timothy Carter, Finnish Environment Institute)	This figure is no longer included within the summary for policymakers.
2173	68000	SPM	39	0	41	0	Figure SPM.5: It is not clear why figures of three regions are only shown in SPM. If regions with high risk are only picked up, then a description related to the risk assessment should be added. Otherwise, figures in all regions should be shown in both SPM and main bodies of relevant Chapters. (JAPAN)	This figure is no longer included within the summary for policymakers.
2174	68001	SPM	39	0	41	0	Figure SPM.5: The figure of Europe is not included in main body of Chapter 23. Thus, this figure and relevant description should be added in Chapter 23. (JAPAN)	This figure is no longer included within the summary for policymakers.
2175	70296	SPM	39	0	41	0	These figures are very difficult to read and a better explanation of how to read them would help a lot. i.e shall we read the fully grey "pie pieces" (livelihood and poverty for +4 degrees) that the risk level is extremely high despite adaptation? (SWEDEN)	This figure is no longer included within the summary for policymakers.
2176	70628	SPM	39	0	41	0	Figure SPM.5. The addition of Australasia to this figure could be useful as it would allow high level comparisons between the different geographical areas. (NEW ZEALAND)	This figure is no longer included within the summary for policymakers.
2177	70629	SPM	39	0	41	0	Please reformat the text in the diagrams so it's readable without having to turn the page around and also including a key to explain what the different colours stand for, to make the diagram clearer and more effective. (NEW ZEALAND)	This figure is no longer included within the summary for policymakers.
2178	77289	SPM	39	0	41	0	I found these wheels very confusing. At least label them the right way up! I note the risk visually almost vanishes when it's all "very high". (William Ingram, Met Office)	This figure is no longer included within the summary for policymakers.
2179	77290	SPM	39	0	41	0	What on earth are "Era of Climate Responsibilities" & "Era of Climate Options" supposed to mean? That we have no choice till 2080? They don't sound to me like anything which has any place in a scientific assessment. (William Ingram, Met Office)	This figure is no longer included within the summary for policymakers.
2180	79308	SPM	39	0	41	0	FIGURE SPM5: We think the terminology 'era of climate responsibility' and 'era of climate options' is misleading and shouldn't be used here, or within the rest of the Working Group 2 report. It isn't clear what it means, and seems to imply that we only have responsibility now. Within this figure, the section for oceans is always blank, which gives the impression there is zero risk for oceans, which isn't correct (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure is no longer included within the summary for policymakers.
2181	61841	SPM	39	1	0	0	Figure SPM 5. Propose to drop the figures from the SPM, maybe keep them in the TS, but then improve them and present for all regions, not for just 3. E.g., the colour scheme: red seems to imply "bad" which may be chosen because of the 4 degrees, but if impacts can be reduced to a low level, red is not justified, even in a 4 degree world. It is hard to verify the assessment of the authors of the level of risks and the potential of adaptation, but it seems strange that for Africa the potential to mitigate risks through mitigation seems to be marginal even in the 2nd half of the century. Similarly, one wonders why so many sectors are empty in the Figures, while material is available about risks according to the regional chapters. Was that information considered to be insufficient (e.g no urban risks in North America, no security issues in Europe, no health risks in Africa)? The blue lines (present risk levels suggest that this is the desirable level., as usually in this kind of graph, but probably not meant here. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2182	61839	SPM	39	1	41	1	This set of figures is very difficult to understand and not suited for the SPM. Simpler versions are needed for the information, including relations to the RCPs rather than just to 2 and 4C. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2183	63365	SPM	39	1	41	50	Figure SPM 5. A number of issues. The graphical representation of the information is difficult to interpret. The colour scheme is poorly explained (what do purple, orange, and red indicate? And what are the thin blue lines). The regional charts are incomplete, with "A" Africa very poor. also Asia and, South America, etc not represented at all. I imagine the gaps are due to a lack of analyses from which to draw conclusions. However, this is not stated in the caption, and the casual reader might interpret the gaps as indicating "no cause for concern". The terms "era of climate responsibility" and "era of climate options" are not transparent. Why a 40 year gap between 2040 and 2080? Particularly as many major infrastructures (road and rail networks, coastal defences, etc.) might reasonably be expected to be functional well into this "gap" period.	This figure is no longer included within the summary for policymakers.
2184	61840	SPM	39	1	42	0	Add continent name to each figure as well as A,B,C. Which RCPs were used to create these figures? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2185	78263	SPM	41	0	0	0	If I am reading this figure correctly for North America, I see that "Ecosystems and Biodiversity" are shown to have no potential for adaptation (the colored space is a line rather than a shape with colored space in the middle). I understand that this relies on expert judgment, and as someone with some expertise in this area, I recommend, that this line be widened for the Era of Climate Responsibility 2030-2040 to the same width as the "Water resources & management" adaptation potential, as there are clearly examples of species that will be able to find climate refuges during this era of less extreme change. (Shane Easter, Carnegie Institution of Washington )	This figure is no longer included within the summary for policymakers.
2186	62485	SPM	42	0	0	0	At least in case of Mumbai, the sole Indian city, it is not clear how this conclusion has been arrived at. I hope that this was based on some STANDARD peer-reviewed literature. (INDIA)	This figure is no longer included within the summary for policymakers.
2187	63162	SPM	42	0	0	0	Fig SPM 6 - The line associated with Canadian North box does not point to northern Canada but rather southern Canadian agricultural region. If this box is meant to be associated with issues in northern Canada and therefore Arctic then it could be combined with Arctic box. If it is supposed to be associated with agricultural region (Prairies) then it should be re-labelled as western Canada. (Sharon Smith, Geological Survey of Canada)	This figure is no longer included within the summary for policymakers.
2188	63163	SPM	42	0	0	0	Fig SPM 6 - The issues raised for Russian Arctic are also true for Canadian Arctic - i.e. issues of thawing permafrost, ice free season etc. (Sharon Smith, Geological Survey of Canada)	This figure is no longer included within the summary for policymakers.
2189	64012	SPM	42	0	0	0	Figure SPM.6: The figure is too unspecific and not policy relevant enough for the SPM, given the limited space. Detailed information on impacts and associated risks is given in the Tables. Please delete this figure. If not deleted, graphical improvements needed, for example, country-boundaries are not needed as information relates to regions, but policy makers would appreciate to more detailed information per continent/country groups (e.g. AOSIS, etc.), otherwise topography might be useful. Africa has only one risk/hotspot, please add more information, given your statement on p 15. I 31 ff. (GERMANY)	This figure is no longer included within the summary for policymakers.
2190	68156	SPM	42	0	0	0	Figure SPM.6 contains no examples of significant disaster impacts felt in other Asian regions like East Asia and Central Asia. It is suggested to add examples of Asia taking into account relevant chapters, such as Chapter 24. (CHINA)	This figure is no longer included within the summary for policymakers.
2191	68157	SPM	42	0	0	0	Figure SPM.6 contains a world map with national borders. It is suggested to use a map without borders to avoid unnecessary disputes. (CHINA)	This figure is no longer included within the summary for policymakers.
2192	70361	SPM	42	0	0	0	Figure SPM.6. Use an equal-area projection to accurately present the world. The current map inaccurately portrays surface areas and the relative areas of land and sea and of various continents with one another. (Patrick Gonzalez, National Park Service)	This figure is no longer included within the summary for policymakers.
2193	71033	SPM	42	0	0	0	Fig SPM.6: Box identified as Canadian north pointing to Canadian Prairies not northern region of Canada. Suggest adjusting the figure. (CANADA)	This figure is no longer included within the summary for policymakers.
2194	71034	SPM	42	0	0	0	Fig SPM.6: This Figure is not referenced anywhere in Ch. 19 therefore it is difficult to link the highlighted hotspots to text in the chapter. (A place holder for the Figure is in section 19.3.2.4 but there is no discussion of the Figure or reference to it). The caption to this Figure should be expanded to include the definition of a multi-impact hotspot (defined in Ch. 19 page 18 lines 48-50). Some additional information is needed about the selection of the hotspots and whether the boxed text is linked to Ch. 19 or to the whole WGII assessment generally. At a glance, it is hard to reconcile some of the text boxes (e.g., why are the conclusions about the Arctic and Canadian North different; why is SLR not mentioned in the SE Asia box?). (CANADA)	This figure is no longer included within the summary for policymakers.
2195	76223	SPM	42	0	0	0	Figure SPM.6 Comments - Suggest spelling out abbreviations in the caption. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
2196	78200	SPM	42	0	0	0	Figure SPM.6: I like what the map is trying to accomplish here. However, the map omits many other significant hotspots, and this may cause the policy-maker reading it to develop an incorrect understanding of the global landscape of climate hotspots. Also, what is the purpose of mixing cities with regions and countries in one map? Not sure if it is a good idea to mix these different scales together in one map. May be better to annotate regions only, as that may be more consistent and cover more areas of the world. Combining the comprehensiveness of the content in Table SPM.4 with the map visual in Figure SPM.6 would be an ideal solution. (Andrew Wong, University of Waterloo)	This figure is no longer included within the summary for policymakers.
2197	78264	SPM	42	0	0	0	This is a great start to this highly useful figure. It could benefit from limiting the salient examples to 1-2 per continent and locating them centrally on each continent to improve readability, as well as including the arctic and antarctic in the examples. It could also simply contain an expanded number of "tipping points" alluded to earlier (page 10, line 2-3) as the salient examples. (Shane Easter, Carnegie Institution of Washington )	This figure is no longer included within the summary for policymakers.
2198	78465	SPM	42	0	0	0	Figure SPM.6: The line for the "Sub-Saharan Africa" box may want to point a little further away from the Sahara. (Dáithí Stone, University of Cape Town)	This figure is no longer included within the summary for policymakers.
2199	78466	SPM	42	0	0	0	Figure SPM.6: The line for the "Canadian North" box may want to point somewhere north of 60N in Canada. (Dáithí Stone, University of Cape Town)	This figure is no longer included within the summary for policymakers.
2200	79878	SPM	42	0	0	0	Figure SPM.6: Abbreviations and acronyms in the figure need to be explained. In addition biological risks are little covered in this figure (NORWAY)	This figure is no longer included within the summary for policymakers.
2201	59800	SPM	42	0	42	0	Figure SPM6 - the Great Barrier Reef and associated coast is a highly relevant multiple impact hotspot for Australia (cyclones and other extreme weather, sea level rise, OA, flooding). Could a marine example be added to the list? (AUSTRALIA)	This figure is no longer included within the summary for policymakers.
2202	65838	SPM	42	0	42	0	Figure SPM.6: Assumptions for climate change (global average temperature change), socio-economic development, time points should be mentioned. If these hotspots were identified based on assessments for scenarios like SRES-A2 (with huge population and low economic development), it might be drawn very seriously, and it might give readers excessive concerns about global warming. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	This figure is no longer included within the summary for policymakers.
2203	68004	SPM	42	0	42	0	Figure SPM.6. What about settlements and infrastructure in SIDS? (JAPAN)	This figure is no longer included within the summary for policymakers.
2204	68005	SPM	42	0	42	0	In Figure SPM.6, impact assessments for some cities such as New York and Sao Paulo are described together with those for wide regions such as Asia. If those impact assessments are not specific only for those cities, it may be proper for policy-makers to describe wider areas with common impact assessments rather than cities. For example, East Coast in North America instead of New York, or East Coast in Brazil instead of Sao Paulo. (JAPAN)	This figure is no longer included within the summary for policymakers.
2205	79309	SPM	42	0	42	0	FIGURE SPM6: Instead of picking out these examples, we would find it more useful to have a figure showing key risks for each region, which could use symbols to represent different sectors (as for AR4). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure is no longer included within the summary for policymakers.
2206	63366	SPM	42	12	0	0	This should be reference to pre-industrial temperatures, which is the standard reference point, not the more arbitrary 1986-2005 period. This a general point and needs to be harmonised across all WG reports. (IRELAND)	This figure is no longer included within the summary for policymakers.
2207	57565	SPM	43	0	0	0	Box SPM.6 Figure 1: 1) Please clarify "past" means since pre-industrialization or not. 2) Clarify when is present. Is it 2010 or 2014 or some other year? From the Figure, present seems to be different from the time when temperature increase was 0. 3) In lines 48-50 on page 40 of WG2/Ch. 19, there are explanations about the left hand bar of Box. SPM6. Figure 1 describing a transition to red is located at 1 degree and also a transition to purple is located around 2 degree. This explanation is not consistent with the Figure. Also please add this explanation to Box. SPM6. Figure 1 and in doing so, make it clear the base year from when 1 degree and 2 degree are counted (in reading lines 48-50 of page 40 of Ch. 19, this seems to be from 1990). 4) Does the temperature increase in this Figure mean in 2100 or at the equilibrium? 5) Please make it clear that adaptation is not included in the same way as in Figure SPM 2 of AR4/WG2. 6) Please add the note to this Figure that the risk varies depending on development pathways and this is not reflected in this Figure. (Mitsutsune Yamaguchi, The University of Tokyo)	Baselines, terminology, and temperature increase over time are now substantially clarified in the revised figure. The transitions among colors have been carefully calibrated, matching description within the text of the summary for policy makers. Please see Box SPM.4 Figure 1.
2208	60342	SPM	43	0	0	0	Box SPM.6: The graph and the legend, mark "updated" from which reference? (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	The introduction of the reasons for concern now makes clear that they were 1st developed in the 3rd assessment report, with iterative updating over time. Please see Box SPM.4 Figure 1.

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2209	62705	SPM	43	0	0	0	Box SPM.6 Figure 1: not just wire "Expert judgment" but should write "Expert judgment by the lead authors of Chapter 19". (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	A full explanation of the expert judgments and methods employed within chapter 19 is provided within the underlying chapter. Please see Box SPM.4 Figure 1.
2210	62706	SPM	43	0	0	0	Box SPM.6 Figure 1: Purple color can be seen from around 1.5 degrees C in the figure; however, the text describes that the purple is from 2 degrees C. The figure should be revised to meet the text. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	Transitions among colors having carefully calibrated, with text describing the figure consistent with these transitions. Please see Box SPM.4 Figure 1.
2211	63053	SPM	43	0	0	0	Box SPM.6 Figure 1: The graphic design of this key figure is not overly appealing (including type of letter, graphic features etc). Is the reason for this that the corresponding figure from TAR should be replicated (as an update), such that everyone recognizes the figure? If this is not the case, I suggest improving the graphic design, it is really not up to today's standards. (Christian Huggel, University of Zurich)	The graphical presentation of information has been improved. Please see Box SPM.4 Figure 1.
2212	63367	SPM	43	0	0	0	Box SPM 6 Figure 1, Edit 2 degree and 4 degrees warming relative to preindustrial (IRELAND)	Reference to these levels is now provided. Please see Box SPM.4 Figure 1.
2213	65396	SPM	43	0	0	0	Box SPM.6 figure 1: The inclusion of this figure is appreciated. (Klaus Radunsky, Umweltbundesamt)	Thank you for this comment. Please see Box SPM.4 Figure 1.
2214	68006	SPM	43	0	0	0	Box SPM6 Figure1: The mitigation cost for 2, 2.5 and 3 degree C is largely different. Whereas in this picture only shows the rough value, because of the uncertainty. Please discuss about the application of Decision Cycle discussed in Chapt.2. (JAPAN)	Further context for the assessment of the reasons for concern can be found within chapter 19, partially addressing these questions. Please see Box SPM.4 Figure 1.
2215	68007	SPM	43	0	0	0	Box SPM6 Figure1: This figure doesn't take into account the time scale and pathway. Therefore, please put Figure 19.6 in SPM together with an appropriate explanation including Figure 1 doesn't count the timescale and pathways. (JAPAN)	Further context is provided through the left-hand panel now included within the figure. Please see Box SPM.4 Figure 1.
2216	68008	SPM	43	0	0	0	Box SPM.6 Figure 1: 1) Please clarify "past" means since pre-industrialization or not. 2) Clarify when is present. Is it 2010 or 2014 or some other year? From the Figure, present seems to be different from the time when temperature increase was 0.3) In lines 48-50 on page 40 of WG2/Ch. 19, there are explanations about the left hand bar of Box. SPM6. Figure 1 describing a transition to red is located at 1 degree and also a transition to purple is explained to located around 2 degree. This explanation is not consistent with the Figure. Also please add this explanation to Box. SPM6. Figure 1 and in doing so, make it clear the base year from when 1 degree and 2 degree are counted (in reading lines 48-50 of page 40 of Ch. 19, this seems to be from 1990). 4) Does the temperature increase in this Figure mean in 2100 or at the equilibrium?5) Please make it clear that adaptation is not included in the same way as in Figure SPM 2 of AR4/WG2.6) Please add the note to this Figure that the risk varies depending on development pathways and this is not reflected in this Figure. (JAPAN)	Terminology and baselines have been clarified. Description in the text matches the carefully calibrated color transitions. the left-hand panel further clarifies context. More explicit assessment of potential for adaptation is now provided within the summary for policymakers in the table of regional key risks. Please see Box SPM.4 Figure 1.
2217	68540	SPM	43	0	0	0	The categories on the x axis are not exclusive. For example, the first category 'risks to unique and threatened systems' has overlap with the second category: 'risks associated with extreme weather events', and idem with the third, fourth and fifth category. This does not make it a strong figure. (NETHERLANDS)	The importance of this assessment is now further emphasized within the text of the summary for policymakers. Please see Box SPM.4 Figure 1.
2218	76224	SPM	43	0	0	0	Box SPM.6 Figure 1 Comments - The last sentence of the caption is confusing. It could be read to mean that a new dimension (adaptive capacity) has been added to the analysis. Suspect that the authors just want to point out that purple is a new highest level of risk (not used before) and explain what it is linked to in the one category where it appears. (UNITED STATES OF AMERICA)	The description of this color is now described with more detail to improve clarity. Please see Box SPM.4 Figure 1.
2219	77454	SPM	43	0	0	0	SPM6 Figure 1 on the burning embers very important to keep in because very illustrative and relatively easy to understand graph (Sven Harmeling, Germanwatch)	Thank you for this comment.
2220	59801	SPM	43	0	43	0	Strongly support inclusion of new purple colour and new category 'risks to unique and threatened systems'. (AUSTRALIA)	Thank you for this comment.

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2221	64013	SPM	43	0	43	0	Box SPM.6 Figure 1: This figure is highly policy relevant. We have some comments and suggestions: 1) The increase in global mean temperature that is shown on the vertical axis should be above the beginning of industrialization, not above 1990. A second axis showing T changes since pre-industrial would be helpful, as this is the common reference-point for the UNFCCC. 2) Please add explanations on the meaning of "global aggregate impacts" and "large-scale singular events". 3) The tops of the four right bars are colored in the same red, but the text in the boxes differs, which is confusing. The different text in the individual bars seems is not needed as the colors are explained in the caption. 4) If purple color is introduced for "low/no adaptive capacity above a certain threshold", it should be considered if other categories may equally have thresholds for adaptation. 5) Given that the coloring refers to "additional risk due to climate change" (not to total risk), one wonders how a) this is disintegrated for compound impacts, b) why the risks associated with extremes are judged to be on similar level as the risk to unique and threatened systems, as the analysis in this report clearly indicates that there are massive impacts on unique systems already observed, while there are no clear trend in extremes or damages manifest that could be attributed to climate change, except for heat waves. 7) Committed warming would be an additional line of interest. (GERMANY)	Baselines have been clarified, with 2 and 4°C above preindustrial additionally specified. More precise introduction of the purple color is now provided, and transitions among colors have been very carefully calibrated and match to description within the text. Explanatory descriptions of the reasons for concern have been further clarified in Box SPM.4. Further detail available in chapter 19 addresses additional aspects raised here. Please see Box SPM.4 Figure 1.
2222	65839	SPM	43	0	43	0	BOX SPM.6 Figure 1. This figure might lead to a misunderstanding that IPCC recommends the target of 2 degree C, although the target should be discussed taking into account not only impacts but also several complex issues such as reality of GHG reduction activities, interactions with economic growths and sustainable development, diversity of value judgment, and etc. The limitation of this expert judgment should be added carefully. (Ayami HAYASHI, Research Institute of Innovative Technology for the Earth (RITE))	A core feature of this figure is the emphasis on the role of values. For each reason for concern, the color transitions differ with increasing level of global mean temperature increase. Please see Box SPM.4 Figure 1.
2223	57625	SPM	43	0	47	0	The near term projection such as period of 2016-2035 are important for the policy makers and public. It should provide the climate change, impacts and risks for 2016-2035. (ZONG-CI ZHAO, National Climate Center)	Please see the working group 1 contribution for specific projections, with reference made here through the newly added left-hand panel. Please see Box SPM.4 Figure 1.
2224	61843	SPM	43	1	0	0	Figure SPM Box 6. It would be good to include the TAR figure next to this figure for comparison, and maybe the figure that was not included in the AR4 but published shortly afterwards in PNAS. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Reference to the historical context is made in the text of the summary for policymakers. Please see Box SPM.4 Figure 1.
2225	61842	SPM	43	1	43	0	The amber diagram is no longer so useful as there is very little information and very little colour contrast. Figure SPM2 of AR4 was more informative and we recommend that a new version is produced, including references to the RCPs. Also, this figure uses T change relative to 1990, but T change targets are expressed relative to pre-industrial era. Redraw using pre-industrial temperature as a baseline. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Baselines have been clarified, and the left-hand panel strengthens linkages to projections across the RCPs. Please see Box SPM.4 Figure 1.
2226	60343	SPM	44	0	0	0	Box SPM.7: Replace "Adaptation Limit" by "Potential Adaptation Limit". (Andrew Ferrone, Public Research Centre - Gabriel Lippmann)	This figure is no longer included within the summary for policymakers.
2227	61844	SPM	44	0	0	0	Box SPM.7 Figure 1: This figure is not self-explanatory. What does "adaptation limit" mean? Why are most risks classified as "tolerable"? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2228	64014	SPM	44	0	0	0	Box SPM.7 Figure 1 is unspecific and not policy relevant to find out concrete and practical limits of adaptation. Much more useful information is given for example in Figure SOM.5, that also shows limits in adaptation, but linked to adaptation measures. In addition, Box SPM.7 Figure.1 suggests that there is a fairly area of tolerable risks - this political message is not consistent with the text of Box SPM.7 that addresses adaptation limits and transformation. Please delete. (GERMANY)	This figure is no longer included within the summary for policymakers.
2229	68009	SPM	44	0	0	0	Boxes, figures and tables are crucial sources of information for policy makers and are often referred to in making policy decisions; thus the scientific soundness and containment of key policy relevant findings is critical. This figure is rather abstract and does not contain relevant in-depth information and is unlikely to be useful in the policy making process; and therefore, we suggest it be deleted. Without concrete example of tolerable risks and the limits of acceptable and adaptation risks, it cannot contribute to a deeper understanding of the concept. (JAPAN)	This figure is no longer included within the summary for policymakers.
2230	76225	SPM	44	0	0	0	Box SPM.7 Figure 1 Comment - This figure is confusing. It seems to be implying that our ability to decide to adapt is controlled by the risks we face. That would be as opposed to things like political will, available resources, technological advancement, etc. Do the authors suggest a space where we find risk intolerable but have no ability to adapt. Does the large space in the middle labeled "Tolerable Risks" imply that we are willing to do nothing in the face of moderate-frequency and -intensity impacts? Maybe the lack of clarity stems from the nebulousness of the "adaptation" term. Is this representing proactive policy-driven actions to mitigate perceived future potential impacts? In that case the meaning of the upper-left-hand red space is not obvious. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers.



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2231	76226	SPM	44	0	0	0	Box SPM.7 Figure 1 Comments - This figure makes no sense as it suggests a concave/convex relationship between acceptable and unacceptable risks which is unlikely. There are likely a wide range of shapes that might define this relationship. The terms acceptable, tolerable, intolerable are policy judgments. This figure should be removed. (UNITED STATES OF AMERICA)	This figure is no longer included within the summary for policymakers.
2232	78099	SPM	44	0	44	0	Box SPM7 Fig.1 graphic display with a large area for tolerable risks may lend to believe that most risks are tolerable, hence do not require any curative actions (Philippe MacClenahan, Synergies Environnement)	This figure is no longer included within the summary for policymakers.
2233	79310	SPM	44	0	44	0	Figure SPM7: This covers a core concept but we think the diagram is misleading. For example, how can it be within the acceptable risk to be so close to a catastrophic impact. We are also not sure it gives the right message - as adaptation options would alter the level of risk and this isn't shown. The diagram does not convey the limit of unacceptable risks, where tolerable risks become intolerable, and implies that the adaptation limit is the same as the transition from tolerable to intolerable. We suggest replacing this with a clearer and more accurate figure on risk management. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This figure is no longer included within the summary for policymakers.
2234	61846	SPM	44	1	0	0	Figure SPM 6. Examples are rather arbitrary, propose to delete (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2235	61847	SPM	44	1	0	0	Figure SPM.7. Not all readers will be familiar with the difference between acceptable and tolerable risk. Define (maybe on page 2 in the glossary). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2236	61845	SPM	44	1	44	0	Figure is misleading - space not shaded marking adaptation is very large and suggests adapting will be easy. The figure could be deleted since it is not very informative. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This figure is no longer included within the summary for policymakers.
2237	56986	SPM	54	1	54	1	Box TS.8 referred to here is far towards the end of the last pages of the document. This location is really inconvenient for a reader to keep on turning pages of a document to refer the the box. It is noted that virtually all tables, figures and boxes are not within the same subject which they refer to and the reader has to keep seraching where they are located which is very inconvenient indeed. Further, all these labeled TS..., another confusion again since this is a summary for policy makers! hence for clarity, lableing of figures, boxes, tables should be SPM.... or SP... (KENYA)	This box is no longer included within the summary for policymakers.
2238	68541	SPM	90	0	0	0	Authors need to reconsider including examples of locations from Africa where mangrove restoration and rehabilitation have worked (NETHERLANDS)	This comment is misplaced, and its context cannot be determined by the authors.