

#	Comment	Response
1	The audience appears to be (1.4.17) the world's disaster risk management community: this should be made very clear in the Summary and Chapter 1. (Wright, Richard, American Society of Civil Engineers)	The target audience is broad, focused on but not limited to the world's decision-makers.
2	The report will be very valuable to this community for the information it contains and for its extensive references. (Wright, Richard, American Society of Civil Engineers)	Thank you for this comment.
3	The report should give greater recognition of the roles of engineering standards and engineers in disaster (Wright, Richard, American Society of Civil Engineers)	As appropriate to the scope of underlying chapters and relevant literature, engineering standards and engineers are considered in the assessment of this report.
4	The report should give greater recognition to the roles of the private sector in disaster risk management (Wright, Richard, American Society of Civil Engineers)	As appropriate in the underlying chapters, the private sector is considered.
5	Much of the material in the report is not specifically related to climate change and could be eliminated or drastically summarized by using references to the literature. The report is weak or nil as far as the role of engineering and standardization is concerned, and fails to mention the role of private industry and how that role can be stimulated by public policy. (Simiu, Emil, National Institute of Standards and Technology)	The text in the underlying chapters has been drafted with climate change as the focusing lens for topics considered. Engineering, standardization, and private industry are considered as relevant, as supported by underlying literature
6	As mentioned in the previous review chapters following the 'core' chapter 1 provide definitions and discussions of the basic notions of 'disaster', 'disaster risk', 'extreme' event'. This leads to repetition (duplication) as the smallest problem. In a few occasions (f.i. Chapter 4, p. 16) used are connotations of the terms above which differ from that implied in the basic chapter, which involves confusion. Again I recommendation to keep all definitions in chapter 1 and insert references to these in the subsequent chapters of the report. (Porfiriev, Boris, Institute for Economic Forecasting, Russian Academy of Sciences)	Consistency of definitions has been addressed in the revision of the report, also through further development of the report glossary.
7	Throughtout the report GLOFs (Glacier Lake Outburst Floods) are hardly mentioned although they are - if geological preconditions are given - the result of climate change and are causes of extreme events and hazards. (Kaser, Georg, University of Innsbruck)	Glacial lake outburst floods are considered where relevant in the underlying chapters, to the extent that is supported by the underlying scientific literature.
8	There is a fair amount of overlap/duplication between almost all chapters I reviewed. At other times terms are re-defined across chapters. As part of your editing I recommend that someone looks across all chapters to address this. This linksto my comments on e.g. Chapter 5: having a more clear layout and objective for each Chapter will help. (Brooke, Roy, United Nations)	Overlap across chapters and consistency of definitions has been considered in the revision of the report.
9	I have made the comment in specific terms above. It is evident to readers that different chapter authors have interpreted their instructions differently. Not all chapters present a coherent summary of key policy-relevant issues and then back it up in the text. As noted in more above, all chapters should follow one format. I would propose that chapter 6 be the model as it is the model readable of those I reviewed. (Brooke, Roy, United Nations)	All chapters fulfill their mandate of assessing topics on the plenary approved outline. Clear, and concise executive summaries have been added for each chapter.
10	In general this version is much improved. However it does seem to be overly long. Chapter 3, for example, repeats much of the work of IPCC. Chapter 4 similarly contains much that repeats previous IPCC reports. Is these any scope for merging both chapters and shortening the content but retaining a clear focus on impacts? (O'Brien, Geoff, Northumbria University)	Reduction of length and an increased focus on material since the 4th assessment report has been the focus of revisions of the report. It remains important that relevant AR4 findings are repeated and discussed in the context of the updated SREX assessment.
11	Much improved text overall but still very long. (O'Keefe, Phil, Northumbria University)	Chapter revisions have focused on reducing length wherever appropriate.
12	I still think the chapter summaries, at the beginging, need one style and stronger connection to the summary. (O'Keefe, Phil, Northumbria University)	Consistency across the Chapter executive summaries has been enhanced in the revision of the report.
13	I should thank from the respective authors for their great works for writing the chapters of IPCC SREX. I focus on chapter 5 and 6 due to my current interest and time limitation. I draw the attention of authors to the following items: (Eslamian, Saeid, Isfahan University of Techology)	Noted.

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14	-My experiences show that the “Integrated Risk Assessment” is more important than risk management. In the other words, an approach to the management of risk that includes all sources of hazard, pathways and receptors, and considers a wide combination of risk management options (UKCIP, 2003). In risk management, we always try to take the best policies and decisions. In climate change situation as the most important world problem, integrated risk assessment is very essential and vital. While no chapter and or associated part has been appropriately allocated to this important big issue. (Eslamian, Saeid, Isfahan University of Technology)	The importance of the various determinants of risk and the portfolio of options available have been considered in revision of the report and are emphasized throughout.
15	Adaptation- Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploit beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC TAR, 2001). (Eslamian, Saeid, Isfahan University of Technology)	This definition has been noted. Please see the report glossary as well.
16	Education-One of the major factors that effect on coping and adaptation with extreme events is literacy and education. In some ways, this factor is more important than the other factors (age, gender and health) but the authors did not include it. Do you think the level of people education does not have the significant effect on the coping and risk management in local level? (Eslamian, Saeid, Isfahan University of Technology)	Education is a determinant of vulnerability that is considered across a number of chapters of the report.
17	First of all we would like to acknowledge the great and fruitful efforts made by the writing team and its leadership in order to prepare a draft of the Special Report. Our review of the current version, presented below, is focused on further improvements of this draft. The Special Report is expected to be a very important component of the scientific basis of policy making in the field of climate at the national and international levels. The version of the Special Report presented for reviewing includes the Summary for Policymakers (SPM) and the main text which consists of nine chapters. The Report contains 787 pages. Such a big size of the Report may be well understood taking into account the importance and multidimensional nature of the problem under consideration on one hand and different types of target audience's on the other hand. (RUSSIAN FEDERATION)	Thank you for this comment.
18	On the whole, from Chapters 5-7 it is seen that risk management mechanisms mentioned in those chapters can be applied not only at the levels/scales they are proposed for, but also at other levels/scales. These mechanisms should therefore be mentioned in other chapters as well. (RUSSIAN FEDERATION)	The variety of options available across scales has been considered in the revision of chapters 5 through 7.
19	multi-page tables: repeat header of table on each page to facilitate reading (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	The layout and clarity of tables has been greatly improved in the final production of the report.
20	We can not find a mention of the shrinking and swelling of clays hazard in the SREX document. This hazard is currently considered by the insurance and re-insurance industry as one of the most costly, as a consequence of the damages induced to the buildings. We recommend to consider including somewhere in the SREX report a highline on this hazard as well as the potential modifications induced by more frequent heat waves in the future. (MODARESSI, HORMOZ, BRGM)	Geological and geomorphological impacts are assessed in SREX, to the extent that is possible from the available scientific literature
21	The SREX report is focused on climate-related hazards. We recommend to better highlight the need of vulnerability and multi-risk approaches, that not only consider climate related hazards but also all potential adverse events in the given area (e.g. earthquakes, tsunamis, volcanoes, industrial risk...). From the perspective of authorities involved in risk prevention, crisis and recovery management, there is the need to adopt a multi-risk approach, in which all potential adverse events are considered in order to get a comprehensive picture of the hazard and the risk in a given area and in order to finally take efficient measures. As an example, hazard maps are produced to provide authorities with specific recommendations, such as: "no settlement" or "no settlement unless specific measures are taken". These recommendations are not hazard specific. This implies thus to analyse some meteorological-related events with geologically-related events together and cross this information into a single hazard map. 2 study involving climate related and non-climate related hazards into a multi-risk approach can be quoted (but there are other examples of them): Grünthal et al. (2006): Comparative risk assessments for the city of Cologne – storms, floods, earthquakes, in Natural Hazards; Garcin et al. 2008. Garcin, M., J. F. Desprats, M. Fontaine, R. Pedreros, N. Attanayake, S. Fernando, C. H. E. R. Siriwardana, U. De Silva, and B. Poisson, Integrated approach for coastal hazards and risks in Sri Lanka, Natural Hazards and Earth Systems science, 2008. (MODARESSI, HORMOZ, BRGM)	The importance of the various determinants of vulnerability and of multi-hazard approaches has been emphasized in the report, as well as in its summary for policymakers.

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22	Recognise this is a massive undertaking of a complex issue. However the repetition of key terms, concepts and tools/methodologies throughout makes it a heavy document to read and absorb, and takes away from key points in each chapter. For example, explanations for components of disaster risk (vulnerability, capacity, exposure, etc) are found in most Chapters, when they are dealt with in detail in Chapter 2. Suggest better cross-referencing and perhaps creating a pull-out 'cheat sheet' summarising key terms/concepts/tools and frequently-used acronyms (DRR, CCA, HFA) that the reader can refer to, if needed. Table 6.6 in Chapter 6 is useful overview of methods/tools/practices that could be built upon. (International Petroleum Industry Environmental Conservation Association (IPIECA))	Overlap among chapters has been reduced in the revision of the report, also through further development of the report glossary.
23	Chapters 1 & 2 seem to cover a lot of the same ground - suggest merging or making Chapter 1 a crisp introduction to the study (International Petroleum Industry Environmental Conservation Association (IPIECA))	Overlap among these chapters has been reduced in revision.
24	Agree with point that cooperative, inter-sector, multi- or inter-disciplinary activity / planning / etc is critical to managing climate risk (this recommendation is noted throughout the document). However cross-coordination between so many actors with varying capabilities and drivers is no easy feat so more discussion on how to actually do this would be beneficial, including additional case studies. (see Ch 5 (p.29, lines 2-15); Chapter 6 (Section 6.2; 6.3.1.3; 6.3.2.2); (International Petroleum Industry Environmental Conservation Association (IPIECA))	Case studies are emphasized in the report, also in the summary for policymakers.
25	Chapters 5 - 7: A lot of good information and discussion in these chapters however because there is so much data and text (and repetition), it is often difficult to determine what is important or critical and the key findings / recommendations which should shape policy or action are lost. A streamlining of discussion with crisp findings or recommendations would be useful. Also suggest that Chapters 5 and 7 develop an overview / summary table similar to that found in Chapter 6 (Table 6.1) (International Petroleum Industry Environmental Conservation Association (IPIECA))	The key assessment findings have been further emphasized in revision of these chapters, also through development of the summary for policymakers.
26	I fear that the present form of the document misses an important opportunity to convey valuable context to the prospective user community. (Global Climate Observing System Steering Committee)	Relevance for the intended audience of the report has been enhanced through the revision of underlying chapters.
27	The most important message is that it is critically important for nations to undertake environmental risk analyses even if climate is not changing. Further if plans are developed to address the environmental stresses that have been documented in the national historical record, enormous societal value will ensue. (Global Climate Observing System Steering Committee)	The importance of all of the determinants of disaster risk are emphasized in the findings of the report.
28	The above statements deserve the most prominent possible position in the document. The above work deserves to be done no matter what environmental conditions may occur in coming decades. (Global Climate Observing System Steering Committee)	Noted.
29	Further, there is no need to delay undertaking the above actions, in the hope that climate change model predictions will give more detailed information about the probabilities of the occurrence of climate and weather extremes in the future. The risk/impact/resilience/adaptation work deserves to be done, based on the presently available historical record. If inadequate historical records are available, every effort should be made to recover the national historical record as a matter of urgency. (Global Climate Observing System Steering Committee)	These topics are assessed as supported by the underlying literature.
30	It is appreciated that in general the level of assurance (uncertainty) of the findings has been qualified. However, it is noted that this approach has not been followed in all chapters. The more detailed comments below try to address this issue. (Radunsky, KLaus, Umweltbundesamt GmbH)	Treatment of uncertainties is consistent across all chapters assessing and presenting findings from underlying literature.
31	It is an impressive work and the report gives a good overview and balanced formulation of the risks for extreme events. We are pleased that the importance of exposure for development of future risks are enforced. We also find it positive that the cooperation and integration between different sectors are pointed at as well as noticing that managing of hazardous risks is seen as part of the adaptation. However, there should be more elaboration on final conclusions on sea levels for future scenarios. Further, we notice that, although the Nordic countries will not face the most severe impacts, the Nordic perspective is lacking. Finally, some conclusions are very difficult to comprehend due to difficult language. (SWEDEN)	These topics are addressed as supported by assessment of the underlying literature. Revision of the report has aimed to enhance clarity of language.

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32	<p>The report notes both in the Summary for policymakers and in Chapters 4, 6 and 9 that "low- and middle income countries experience higher fatalities and direct economic losses relative to annual GDP" (quotation from summary for policymakers) than do other countries. While this is undoubtedly true if the measure is fatality and economic loss/GDP, high-income industrialised states have a very high proportion of their well developed and thereby high-asset built environment and infrastructure in coastal areas and areas at risk from flooding. The focus on low- and middle income countries as the countries at risk may be taken as an excuse for policymakers to neglect the very severe risks to areas at risk for e.g. flooding in the Netherlands, UK and the USA, among others. Thus, a measure of vulnerability additional to fatality and economic loss proportional to GDP could be added, and the different contextual circumstances that lead to different forms of vulnerability in industrialised countries should be added. As an example, many high-populated areas in Europe would be at severe risk from a storm or flood event that caused electricity to go out for a week (as did the 2005 storm in southern Sweden in some areas) - the high vulnerability of industrialised state systems to such events is a result of e.g. that most people in these areas do not have for instance kitchen gardens as in many Russian areas that may support food supply during the time but rely on highly disturbance-sensitive transport systems. Adding to the statement on low- and middle income countries with some statement on the high infrastructure values and different vulnerability and risk patterns in the industrialised world would be a strong benefit, and more accurately reflect the different distribution of risk (to infrastructure and systems that are vulnerable in other ways, rather than as fatalities and in relation to GDP) in these states. This sort of statement could be added both in the Summary for policymakers and in the chapters where indicated. (SWEDEN)</p>	<p>This point has been considered and drawn out where relevant in the revision of the report.</p>
33	<p>The report is a formidable effort, but too long to read. I could only provide comments to the SPM as that is the only part I had the time to read. (Castellanos, Edwin, Universidad del Valle de Guatemala)</p>	<p>Noted.</p>
34	<p>IPCC-SREX is a well-written, innovative, and a consistently argued and structured report which touches climate-induced extreme events, their impacts, adaptation options, and management, and thus most relevant topics for climate change policy. The report is well documented and provides substantive key messages. The authors can be congratulated on this report. However, in the overall structure of the report, chapter 9 seems to be out of order. By providing case studies which are not very logically assembled, this chapter is kind of an annex rather than a last chapter (more detailed comments on this chapter see later). The real concluding, very convincing and innovative part of the report is chapter 8 which provides options for proactive, long-term resilience to future extreme events and suggests transformational activities required for resilience-building. I would suggest that chapter 8 should be the very last and concluding chapter of the report, while the "case studies" chapter might be positioned before chapter 8, and should be thoroughly revised. (Bohle, Hans-Georg, University of Bonn)</p>	<p>Further reference to the examples of chapter 9 has been provided in the revision of the report.</p>
35	<p>The Chinese government appreciates and thanks all the lead authors of the IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX), the Bureau and Technical Support Unit (TSU) of IPCC Working Group II for their hard work in preparation of this special report. We believe that the assessment on the status quo of extreme disasters, responses and risk management through this special report will provide a positive reference by various governments in taking actions to adapt to climate change. (CHINA)</p>	<p>Thank you for this comment.</p>
36	<p>The Chinese government welcomes this opportunity to make comments on the special report, and hopes that the following suggestions will play a positive and constructive role in the process of revising the special report. (CHINA)</p>	<p>Thank you and noted.</p>
37	<p>Please replace the six incorrect expressions of "Taiwan" in the report with "Taiwan province of China", namely in: (1) Chapter 3, page 36, line 31; (2) Chapter 9, page 3, lines 26, 28, 32, 33 and 34 respectively. (CHINA)</p>	<p>Noted.</p>
38	<p>2. Due to lack of data and case studies on extreme disasters and risk management in developing countries, the current report does not fully reflect the losses and damages from extreme disasters in developing countries, as well as the relevant needs for capacity building. We believe that the Summary for Policymakers of the report should provide some descriptions in this respect. (CHINA)</p>	<p>Developing countries have been extensively considered in the report, also through examples used.</p>

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39	3.We note that the assessment conclusion on the frequency of tropical cyclones in the report differs from the IPCC Fourth Assessment Report of Working Group I. We believe that the report should make some clarifications on such similar situations. (CHINA)	Differences in assessment since the 4th assessment report are discussed extensively in the underlying chapter text.
40	4.As the presentation of the confidence and uncertainties of major conclusions is a very important issue, we believe that the presentation of uncertainties of the main conclusions in this report should be consistent with the approach adopted in the Fifth Assessment Report. (CHINA)	Treatment of the uncertainties throughout the report is consistent with the guidance for authors.
41	5.This report involves definitions of many terminologies. But some inconsistent expressions of same terminology still exist in different chapter sections, which need to be identified and treated. (CHINA)	Consistency of definitions has been considered and improved in revisions, also through development of the report glossary.
42	It might be necessary to consider the logical connection between different chapters. An example is the content of section 2.7 and chapter 3. Section 2.7 is about the trends in E and V, which is repeated in Chapter 3. (CHINA)	Overlap among and relationships between chapter sections have been carefully considered in revision of the report.
43	REFERENCE FORMATTING: A general comment relating to the format of the reference lists in SREX. Why are first Author names bolded? This style was used in neither the AR4 of Working groups 1 or 2. (Stocker, Thomas, IPCC WGI TSU)	Reference formatting adopted in the final layout of the report is fully consistent with the style guide used for the report.
44	INCONSISTENT TERMINOLOGY: Throughout the report, and especially between chapters 5 - 8, there is inconsistent use of the terms such as disasters, natural disasters, weather related extreme, weather and climate extremes etc. As a consequence it is not always clear if a statement has been made in connection to natural disasters in general (which often seems to be the case in Chapter 6 for example), or if statements are specific to weather and climate related disasters. (Stocker, Thomas, IPCC WGI TSU)	Consistency of terminology has been carefully considered and improved in revision of the report.
45	CONSISTENT DEFINITIONS: Definitions as layed out in the SREX Glossary and introduced in SREX Chapter 1 need to be applied in the subsequent SREX Chapters. If slightly modified definitions are required in one out of Chapter 2-9, those modifications must be explicitly explained and highlighted. (Stocker, Thomas, IPCC WGI TSU)	Consistency of definitions has been considered and improved in revisions, also through development of the report glossary.
46	LINKING OF CASE STUDIES WITH OTHER CHAPTERS: Some of the case studies discussed in Chapter 9 still appear to be more or less decoupled and unrelated to any of the underlying Chapters. There needs to be a coordinated effort to improve the linking between the assessments in Chapters 1-8 with the case studies provided in Chapter 9. This effort has to include both, linking/referring to Chapter 9 from Chapter 1-8 and linking/referring to Chapter 1-8 from Chapter 9. (Stocker, Thomas, IPCC WGI TSU)	Linkages with and references to the case studies have been increased in revision of the report.
47	The IFRC welcomes the SREX which covers a very important area of work that is of great relevance to our work. However, we feel that the report can be strengthened substantially in terms of its relevance to decision-makers, particularly in terms of presentation, but also in terms of linking the information on the science base, impacts and underlying risk factors to the chapters on risk management. (International Federation of Red Cross and Red Crescent Societies (IFRC))	Relevance to the policymaking audience has been carefully considered and improved in the revision of the report.
48	One aspect that we are missing in the report at large is climate information across timescales. There is relatively little discussion of how to interpret climate (change) trends (observations and projections) in light of planning for the coming few years, also in light of information about variability on other timescales, particularly seasonal and decadal. In our applied programs, this is where we have found a lot of entry points for better use of climate information in disaster risk management (including longer-term change dimensions). One of the key questions is how the information on trends relates to what we know about variability -- and in some cases predictable aspects of that variability. This applies to chapter 3, as well 5 and 6 (so we'll insert this comment for each of those chapters) (International Federation of Red Cross and Red Crescent Societies (IFRC))	Timescales are considered, as supported by the underlying literature, in a number of the underlying chapters of the report. For many climate extremes, Chapter 3 provides projections for the mid- and late 21st century, and seasonal information is provided to the extent possible.

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49	<p>1. Not enough emphasize in explaining the scientific aspects of those disasters. 2. Other than Hydro-climatic disasters, few other geo-physical disaster like volcanic eruption or earthquake-whether they have relation to climate change, etc are some major discussion [point nowadays. For example, many believe that reduction of ice cover thickness over thosedormant volcanos in Iceland may have caused recetn eruption there. Similarly, whether change in water cycle and groundwater level change have caused any instability in the plate boundaries, etc could be discussed. 3. Few more global based figures, showing distribution and types of disaster occurs at different parts of the world and there futre trend under climate change could be added. 4. Insurance is a very related sector to disaster and is a financial to adapt/cope with disaster losses. Not much importance is placed on this issue in the entire report. I would even say that a seperate chapter could be there on this issue. In fact, the UN Climate Convention (Article 4.8) and the Kyoto Protocol (Article 3.14) have included the provision of insurance as a mechanism to address the risks from climate change. 5. Advanced technology as use of satellites, modeling, more frequent data collection system and based on these better prediction, warning and forecast, etc are some major tools to cope/adjust to disaster. However, not much emphasize is placed in this report on this topic. 6. Mlgration - both local and international may be a great problem. Need to consider this issue seriously. Study shows that almost 80% people living in slums and squetter in the big cities in Bangladesh are disaster victims. 7. Development in the field of Disaster rescue and recovery and health care facilities aftermat of dissasters could be discussed more. (Islam, Md. Siarjul, North Sotuh University)</p>	<p>These points have been considered, as relevant to the scope of the report and its underlying chapters.</p>
50	<p>SREX should be a useful reference for decisionmakers such as planers, policy makers, politicians, and scientists thinking to make inputs for DRM and CCA. Many of them are more related with the terminology of DRM than with CCA's because DRM has been, in the past, part of public policy in any degree (clearly more than CCA). Notwithstanding that SREX is DRM-oriented, SREX is using mainly terms and an approach from CC perspective (like the conventional ARs), making emphasis in the concept of extremes than on the accepted and recognized trends on exposure and vulnerability (real main drivers of disaster risk). Then, SREX is making emphasis "again" as in the beginning of 1990's on hazards..., the decisionmakers shall be confuse thinking that extremes are again the main driver when they during years have been understanding risk as an unresolved problem of development. (Cardona, Omar, Universidad Nacional de Colombia)</p>	<p>The revision of the report has strived for clear terminology and full consideration of the determinants of disaster risk, as well as of corresponding approaches.</p>
51	<p>Decisionmakers should be aware explicitly and directly from SREX that CCA is indeed in most cases the Disaster Risk Reduction when we are speaking about weather or climate events (hydrometeorological hazards); CCA it is not a new and a different activity indeed (it is basically a change of terminology). DRM includes also geohazards, therefore CCA is a specific intervention action of risk reduction regarding climate events. Of course, it is so important to mention in the SREX the differences between on corrective and prospective risk reduction; i.e. between the reduction on existing and stationary risks and new possible risks including the CC as a factor in the exacerbation of the present climate hazards. (Cardona, Omar, Universidad Nacional de Colombia)</p>	<p>The relationship between adaptation and disaster risk reduction as well as the full suite of options for managing risk is extensively considered in the report, as supported by assessment of the underlying literature.</p>
52	<p>Decisionmarkers should understand clearly from SREX that the reduction of the present and future disaster risks related to climate is basically making interventions on vulnerability (socio-economic, institutional ...) and on the exposure in prone areas, by one side, and by environment management and CC mitigation (reduction of gases) on the other side (intervention on hazards). The messages to desionmakers should be simple and clear. There are confusing statements related to extremes considered as of low and medium confidence, evidence... that are like a contradiction due to main emphasis made in the SREX is to extremes. If the emphasis were to vulnerability and exposure and less to extremes (hazards), they should be a confirmation that the hazards are the origin of risk and are important but they are not the main driver of disaster risk at present and in the future, notwithstanding the CC. (Cardona, Omar, Universidad Nacional de Colombia)</p>	<p>Noted and considered in the relevant chapter revisions</p>

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53	<p>Chapters 1-4: 1. This report is based on multiple individual studies that are out of the scope of the Ministry of Agriculture, therefore we are not comfortable giving a technical opinion about the conclusions. There are few references to forestry and agricultural sector in the text and in general terms. 2. The report does not include enough data and information for Latin American countries. In the case of Chile, ice thinning in the southern region of Chile is presented as a vulnerability factor that could facilitates volcanic eruptions. This analysis is very questionable to say the least. No mention is made on the effect of El Niño and La Niña in Chile, restricting the analysis of their dynamics and impacts to the cases of Peru and Ecuador. Undoubtedly this is one of the most important factors in climate variability that affects our country. 3. It is difficult to release an opinion on probabilistic relations, and his validity as a trend, between extreme events and their effect on natural and physical environment and also on human systems in more vulnerable and exposed regions, when the use data for vulnerability and exposition factors are highly variable as established in the report. (CHILE)</p>	<p>These points have all been considered in the revision of the report, with an aim to improve balance of examples and their relevance.</p>
54	<p>It could be good to report that Chile has a National Committee of Agricultural Emergencies, under the responsibility of the Ministry of Agriculture. This Committee has two main tools to help farmers to deal with climate related risks. One is a National System of Emergencies that projects and forecasts important climate related events for agriculture zones of the country. The other is the management of a system of bank insurance for the benefit of farmers suffering economic losses from climate related events. More information about those instruments can be found found in <a href="http://www.minagri.gob.cl/contenidos.php?idweb_contenido=85">http://www.minagri.gob.cl/contenidos.php?idweb_contenido=85</a> (CHILE)</p>	<p>This example has been noted.</p>
55	<p>It would be criminal not to incorporate the impact and meaning of the March 2011 natural disaster in Japan, especially for a state that has planned for such impacts and still feels the devastating effects when the occurrence strikes. (Liotta, Peter, Independent Scholar)</p>	<p>The report assesses literature published by the cut off date for the report.</p>
56	<p>"the report looks very good when compared to the previous reports" (UNITED REPUBLIC OF TANZANIA)</p>	<p>Noted.</p>
57	<p>The definition of vulnerability is slightly confusing in that it is often defined as a function of exposure, sensitivity and adaptive capacity. In the SPM, page 9, line 50 it seems to be used in this way. A review of definitions and acknowledgement of the different definitions would be beneficial. (Darch, Geoff, Atkins &amp; University of East Anglia)</p>	<p>Please see the definitions in the report glossary, as well as those provided directly in the summary for policymakers.</p>
58	<p>It would be useful to briefly review upfront (e.g. SPM page 1) how climate change affects exposure, sensitivity and adaptive capacity. (Darch, Geoff, Atkins &amp; University of East Anglia)</p>	<p>The determinants of disaster risk as influenced by climate change are highlighted at the beginning of the summary for policymakers.</p>
59	<p>Overall comment: A very precious report. However it would be good to emphasise the mountain regions more strongly next to coastal regions and islands since they are the number one victims of climate change. In the case studies, e.g. Ethiopia, it would be beneficial to emphasise that this is a dominantly mountainous country. The role of mountains in the distribution of rainfall could also be described more clearly. The role of mountain topography and mountain climatology in creating extreme floods (rainfall or snowmelt-induced) should also be mentioned somewhere in the report. After all it is mountain regions and the mountain forelands that are effected most strongly and most frequently by extreme events, floods, landslides, debris flows, avalanches etc included. The notion of risks and floods could be brought closer to the topic of sediment and sediment transport. The greatest damage by floods are created not by the water but by the sediments. Another general remark would be the missing elements of tourism and risk at the local and regional level, concerning both coastal and mountain tourism in Ch 5 and 6. Droughts and water scarcity should not be neglected in the context of mountains, since this is an increasing problem in the Mediterranean and Alps. Overall it could be mentioned that droughts cause greater economical loss than floods and are therefore important elements of climate change. (de Jong, Carmen, University of Savoy)</p>	<p>Mountainous regions are considered in a number of locations throughout the report, also with mention in the summary for policymakers.</p>

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60	In instances when SREX deviates from AR4 on either the findings, level of uncertainty, level of confidence, or level of evidence, the report needs to identify these changes and document the rationale for a new assessment, interpretation or understanding (a table summarizing difference in the summary would be really useful). A particular example of a SREX departure is the statement "The frequency of heavy precipitation (or proportion of total rainfall from heavy falls) is likely to increase over many areas of the globe in the 21st century," whereas in AR4 SYR SPM Table 3 projections for "Heavy precipitation events. Frequency increases over most areas." are "Very likely." The relevant new studies since AR4 should be cited accompanied with explanations for the reader in the same way AR4 provided explanations such as "Advances since the TAR.....", " There is now higher confidence than in the TAR ...." or "Studies since the TAR ....." (Webb, Robert, NOAA)	Please see the underlying chapter where a careful and comprehensive discussion regarding assessment progress since AR4 is provided.
61	The overall report provides a good overview about the state of the art of Disaster Management, incorporating the main theories and discussions available. The call for more data in the field could be highlighted in each section, nevertheless a stronger note to applicable know how could be given. Redundant information has been reduced since the last draft, however, the report could be shortened, referring to the overall Assessment Reports and not presenting the information again. State of the Technologies for Disaster Risk Management are presented, however a summary of available technologies and techniques for Disaster Risk Management, like a one stop shop - could provide added value to the report. (Ammann, Walter J., Global Risk Forum GRF Davos)	The final report highlights research gaps where appropriate to the underlying assessment. Additionally, redundancies and overlaps have been further reduced.
62	We would prefer to have a Technical Summary in all UN languages, which may provide more technical details than the SPM without being the full report. Note that recent SRs had technical summaries (on Ozone and CCS) and a TS was prepared for the SRREN. (BELGIUM)	This report has not involved a Technical Summary.
63	Most of my comments on the first draft were appropriately addressed; I only have a few additional/new comments: (Willems, Patrick, Katholieke Universiteit Leuven)	Noted.
64	Tributaire d'une rédaction rapide (moins d'un an ce qui est un exploit) le rapport comporte des recouvrements nombreux entre les chapitres rédigés parallèlement avec des différences sensibles. Il en résulte quelques dissonances et des lacunes qui brouillent la lisibilité. Les observations sur le plan du rapport seront présentées à propos du résumé pour décideurs. Nous donnerons donc ici toute leur place aux observations transversales portant sur l'ensemble du rapport. (BOURRELIER, PAUL-HENRI AFPCN)	These points have been considered in the revision of the report.
65	OG 1- Un objectif central du rapport est de mettre les savoirs de la RRC (Réduction du Risque de Catastrophe, Disaster Risk Reduction) à la disposition de l'ACC (Adaptation au Changement climatique, CCA). Le rapport est imprégné de cette intention de synergie et de transfert d'expérience vers l'ACC des connaissances, des concepts, des outils développés par la RRC. Le chapitre 1 p 23 ligne 53:« A principal goal of the present assesment report is to capitalise on the potential synergies between the fields of DDM and CCA » l'exprime clairement alors que les autres chapitres ne sont pas toujours aussi nets. Un objectif connexe est naturellement de rapprocher deux communautés, celle du GIEC et celle de l'ISDR, tout en les rapprochant de la famille des chercheurs en Développement Durable. Le SREX est-il convainquant sur ce point ? A notre avis oui dans la mesure où il s'agit de rapprochement entre ACC et RRC, de façon partielle et raisonnable car les différences d'objectifs, d'approche et de culture subsisteront, d'autant que, s'agissant des aléas naturels, la RRC est concernée par les séismes, tsunamis et éruptions volcaniques au moins autant que par les risques provenant des conditions et aléas atmosphériques ; désormais la suppression du N (qui figurait dans DIPCN) signifie que s'y ajoutent les aléas technologiques, y compris nucléaires, et épidémiques. D'ailleurs il ne s'agit pas de deux communautés disciplinaires et relativement homogènes mais de groupements élargis de façon évolutive, opportuniste dans le bon sens, autour de quelques disciplines centrales - la climatologie, l'économie du système énergétique pour le GIEC, la géographie, la météorologie et la science du danger (cindynique) et des risques pour la DRR. (BOURRELIER, PAUL-HENRI, AFPCN)	As supported by assessment of underlying literature, synergies and trade-offs and relationships between adaptation and disaster risk reduction are considered.

#	Comment	Response
66	<p>OG1 suite - Le SREX devrait mentionner une autre différence importante : lorsque l'une et l'autre ont été lancées en 1989, la Décennies internationale pour la Prévention des Catastrophes naturelles (DIPCN, IDNDR), matrice de la SIRC (ISDR) relevait de la prévention, alors que le GIEC répondait à la précaution. Les deux missions étaient bien distinctes de ce fait. Sans doute cette différence s'est-elle atténuée, la DRR englobant dans ses extensions des secteurs justiciables de la précaution, tandis que la politique climatique comporte des volets qui s'apparentent à la prévention, mais elle subsiste fondamentalement. L'expression « intégration » des deux politiques ou communautés employée dans certains chapitres est donc impropre et doit être remplacée par une autre pour éviter d'inutiles confusions. Le SREX doit avoir comme retombée annexe l'enrichissement de la RRC par sa méthodologie d'analyse de l'évolution du climat et par les répercussions des projections climatiques sur les niveaux des aléas. Il invite la RCC à se situer dans un monde d'aléas non stationnaires qui doivent, de temps à autre, être réajustés. L'AFPCN en collaboration avec ses partenaires des plateformes françaises et européennes, la SIRC et d'autres agences internationales, s'efforcera de répondre à cette invitation tout en gardant sa priorité absolue commandée par l'élargissement avéré des risques globaux et l'ajustement de leur gestion en considération des valeurs des sociétés et de leurs capacités d'innovation. Un certain rapprochement des deux communautés avec celles du Développement Durable est justifié (chapitre 8). Le résumé pour décideurs pourrait souligner que l'intégration de la RRC et de l'ACC dans les politiques de développement demandera des efforts persistants car elle reste encore peu pratiquée, les approches et les financements spécifiques (qui ont toujours tendance à se multiplier) dominant la scène. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	Noted.
67	<p>OG2- La faiblesse la plus sérieuse du SREX résulte de la définition donnée par le GIEC, au qualificatif « extrême » appliqué à un aléa ou un événement, celle d'une variable (météorologique ou climatique) qui dépasse une valeur limite si tuée à l'extrémité de sa courbe de distribution. Le glossaire et les premiers chapitres ont commenté, chacun à tour de rôle, cette définition d'une façon qui montre à l'évidence une forte gêne. Le glossaire lui-même écrit : " An extreme (weather or climate) event is generally defined as..." ce qui laisse penser qu'il existe d'autres définitions non précisées. Les explications qui se succèdent produisent un effet de lassitude et de flottement pour le lecteur. La piste suggérée par la distinction entre variable météorologique et climatique (weather or climate) étant une fausse piste ne peut que déconcerter encore plus le lecteur. La première explication de la gêne est que cette définition s'applique à un nombre non défini (aucune liste n'est donnée) de variables parmi lesquelles les variables climatiques notamment qui sont des moyennes ; elle est donc extensible et elle fait quasiment disparaître la distinction de leur évolution avec celle des valeurs moyennes. L'objection principale est que, par convention les risques naturels auxquels s'applique traditionnellement la RRC sont produits par des aléas liés à une dissipation rapide d'énergie accumulée, potentiellement chaotique et dangereuse lorsqu'elle dépasse une certaine intensité et devient extrême : énergie d'un cyclone, d'une crue, d'un séisme. Les aléas naturels destructeurs sont caractérisés par des lois de puissance. On voit bien que l'énergie destructive dissipée par un séisme comme celui qui vient de se produire au large du Japon, ou par un cyclone comme Katrina, est hors des ordres de grandeurs courants. Après la quantité d'énergie libérée, d'autres caractéristiques de la dissipation comme sa concentration sur un milieu récepteur interviennent : les impacts du tsunami du 11 mars au Japon ont été incomparablement plus grands que ceux venant directement du séisme dont il a capté qu'une petite part de l'énergie globale pour la transformer en force hydraulique dirigée sur une ligne côtière avec des amplifications dues à la forme du plateau continental dépassant ainsi les limites pour lesquelles les protections avaient été construites, rendant les protections inopérantes. La dissipation d'énergie d'un cyclone est étalée sur un certain temps et relativement prévisible mais les inondations qui l'accompagnent peuvent avoir un effet destructeur qui surprend (BOURRELIER, PAUL-HENRI, AFPCN)</p>	Definitions have been carefully considered and clarified in revision of the report.

#	Comment	Response
68	<p>OG2 suite - destructeur qui surprend. L'effet de serre capte dans l'ensemble de l'atmosphère terrestre une énergie considérable mais considérablement étalée géographiquement et temporellement, avec un potentiel d'accumulation dans la longue durée. Les situations les plus dangereuses se traduisent par des distributions dont les extrêmes ne répondent plus à la très forte réduction de probabilité de la loi normale (de Gauss) pour se conformer à des distributions de Paréto qui n'ont plus ni écarts type ni de moyenne calculable : ce sont les redoutables « flat tails », évoquées trop brièvement par le rapport, qui expliquent qu'un désastre unique comme celui de Katrina, ou celui du 11 mars au Japon, aient la capacité de tout bouleverser. En conclusion, il y a fondamentalement deux points de dépassements distincts dans les définitions des événements extrêmes, et la différence n'est pas une pure question de forme : on ne peut mettre sur le même rang, si on considère les risques, un dépassement modeste de température par exemple et le passage d'un cyclone (qui est un extrême quelle que soit sa classe). La solution serait de distinguer au sein de l'ensemble très large défini par le GIEC deux catégories d'extrêmes. A défaut, il serait encore temps de donner une explication nette, de réduire les répétitions de passages équivalents dans plusieurs chapitres, et de freiner la prolifération abusive de l'étiquette extrême. Dernière observation : l'expression « extrême impact » doit être prohibée car le mot impact représente des effets trop divers. Elle ne se trouve pas dans le glossaire et ne peut conduire qu'à des malentendus avec le mot désastre. Le qualificatif « extrême » a un sens et son emploi est licite lorsqu'on dispose d'une distribution de valeurs définies rigoureusement avec leur fréquence ou probabilité, comme par exemple celle d'une catégorie choisie de pertes économiques (par exemple les dommages assurés) ; les mêmes précautions doivent être prises pour les indicateurs d'impacts sur la santé entre lesquels il faut choisir. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	<p>These points have been noted.</p>
69	<p>OG3 - Par rapport à cette analyse, le SREX, notamment dans son chapitre 3, apporte deux nouvelles : - la bonne nouvelle : le changement climatique ne semble pas devoir modifier de façon appréciable les aléas extrêmes responsables des risques naturels (événements extrêmes catégorie particulière définie ci-dessus), à la suite du forçage par l'effet de serre (ou d'autres forçages entre lesquels il n'y a pas lieu pour le SREX de faire des différences en considération des causes respectives) - la mauvaise : les modifications des moyennes et les extrêmes des variables météorologiques et climatiques auront des impacts croissants par accumulation d'événements, ou pour certains risques comme celui de la sécheresse pour certaines zones, ou encore lorsque le système (monde physique, écosystème, société) atteint des bifurcations (les « tipping points » par exemple, cités en quelques lignes dans le rapport). Le rapport évoque aussi la possibilité d'une accentuation de la variabilité (ENSO...) et des extrêmes forts qui l'accompagnent. Au surplus, des désastres surviendront lorsqu'il y aura une trop grande densité de cibles exposées et que celles-ci deviennent par trop vulnérables, à la suite d'un affaiblissement progressif ou du développement de risques systémiques, le moindre aléa, de quelque origine qu'il soit. Cette position du SREX apparaît comme un de ses apports les plus significatifs. Il serait souhaitable que des travaux de recherche conduisent à l'établissement d'une typologie fine, et que sa présentation donne plus de relief au contraste. Les risques nouveaux correspondant aux instabilités, aux non linéarités du climat, aux bifurcations, aux changements d'états de l'eau, aux effondrements d'écosystèmes, aux crises systémiques des sociétés avancées, ne constituent-ils pas « l'archipel du danger », c'est-à-dire des désastres futurs soupçonnés, pour reprendre l'expression de Georges Kervern, explorateur de la cindynique ? Le paysage est complexe comme le montre le rapport du SREX, et rares sont les seuls connus ; rien, par exemple dans le SREX ne confirme que un seuil pour 2 degrés de réchauffement moyen, souvent affiché dans les déclarations politiques. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	<p>Noted.</p>

#	Comment	Response
70	<p>OG4- Un des apports importants du rapport SREX est de dévoiler l'importance de divers cycles et oscillations océaniques, sources de forte variabilité et d'extrêmes accompagnant le changement climatique. Mais la connaissance est loin d'être robuste. Elle semble étrangère à la dynamique de l'effet de serre qu'éclaircit les modèles climatiques. Les lois physiques qui commandent les unes et les autres sont communes car universelles mais la variabilité résulte probablement d'un cocktail compliqué de forçages dans lequel entrent aussi les cycles solaires, les variations géophysiques internes à la planète et les résonances des bassins océaniques. Pour progresser il faudra débrouiller la superposition et les interactions des aléas (sur une très courte durée), de la variabilité (constatée sur des durées de l'année à quelques décennies) et du changement climatique (durée beaucoup plus longue) selon une distinction seulement esquissée dans le glossaire, et dans plusieurs chapitres. Le SREX a évité à juste titre de s'engager dans l'attribution anthropogénique du changement et des variabilités car les considérations de responsabilité ne peuvent que parasiter son propos. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	<p>These points have been considered in the respective underlying chapters.</p>
71	<p>OG 5- La croissance de l'exposition n'est pas assez bien analysée dans ses causes et les moyens de la limiter. Il en est certes question dans des chapitres 1 et 2, 4, et suivants mais de façon dispersée et trop souvent l'exposition apparaît comme un double de la vulnérabilité. Le tableau n'insiste pas assez sur la tendance lourde des populations à se densifier dans les zones les plus dangereuses et les risques considérables qui en résultent. Il est regrettable que la réflexion consacrée au développement des mégapoles, véritables cumuls de risques, ne soit pas plus centrale. Les mesures pour faire face sont exposées et analysées trop sommairement alors qu'elles reposent sur des acquis solides et que leurs instruments, – le contrôle de l'occupation du sol et la répartition judicieuse des populations et des biens, l'évacuation en cas d'alerte, le nomadisme cyclique –, souvent enracinés dans des traditions, sont bien identifiés et codifiés. La cartographie fine et quantifiée des aléas, les technologies performantes d'Early Warning, les normes de sécurité des constructions et des déplacements permettent des applications de plus en plus efficaces dès qu'il y a une volonté politique et une application concertée. C'est une panoplie d'outils incontournables de la RRC comme de l'ACC et du DD qui interviennent de façon complémentaire dans les perspectives temporelles, la considération du CC et du DD pouvant par exemple inciter à ne pas être pris au dépourvu à l'avenir si un ajustement des aléas de référence devenait nécessaire. Le SREX devrait mieux qualifier ces instruments afin d'appeler à les pratiquer à l'échelle appropriée aux défis et en concertation, dans le respect des droits de l'homme, en relation avec les Agences des Nations Unies. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	<p>Noted.</p>
72	<p>OG 6- La vulnérabilité, mal connue car beaucoup plus complexe, est un objet de recherches et d'actions disparates, d'efficacité diverse, car les moyens pour la déduire sont souvent encore expérimentaux. Elle fait l'objet de longues et nombreuses descriptions pleines de bons sentiments sinon de recommandations convaincantes. Beaucoup de sections sont orientées vers la vulnérabilité des populations pauvres, défavorisées. Les pays développés ont tendance à se donner en exemple pour les progrès de sécurité qu'ils ont réalisés. Cependant peut-on dire que leur modèle est plus conforme à l'objectif de durabilité ? Certes les pays en développement et les tranches de population déshéritées des pays riches sont affectés par de graves épreuves (sous-alimentation, précarité, maladies) localisées, mais ils réagissent par le recours à des pratiques traditionnelles, une forte démographie et une croissance parfois vigoureuse. Les pays développés ont une vulnérabilité attestée par des catastrophes que le rapport du SREX n'analyse pas comme il l'aurait dû, et ils transfèrent à l'humanité le risque de désastres d'une ampleur globale par leurs installations, leurs spéculations financières, leurs déchets, et leurs armes. Les pays émergents qui vont peser lourd dans la gouvernance mondiale des risques, elle-même en émergence, auraient aussi mérité une attention bien plus grande : le monde a cessé d'être binaire et le SREX aurait pu mieux refléter ce changement qui se sera imposé bien avant que le changement climatique ait dominé la variabilité. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	<p>Noted.</p>

#	Comment	Response
73	<p>OG 6 suite - La réduction de la vulnérabilité comporte de nombreux volets dont un est consiste à établir des protections physiques et biologiques et à construire selon des normes étudiées adaptées aux aléas. Ce volet est trop négligé dans le SREX. Il ne suffit pas à lui seul, mais il souvent une base judicieuse ; il peut être coûteux dès lors qu'on considère les extrêmes, il y a des alternatives comme d'agir sur l'exposition en s'installant ailleurs, et pour les aléas faibles en fréquence et intensité s'assurer. La combinaison optimale des mesures doit être étudiée dans chaque cas en fonction du cumul des aléas et des caractéristiques des cibles : par exemple pour les grands feux de biomasse correspondant à un cumul des aléas sécheresse, vent, chaleur, développement de la biomasse, imprudences..., il faut combiner l'entretien des sous-bois et des biomasses (débroussaillage), le choix des essences, les coupe-feu, les distances de protection, l'emploi de matériaux de constructions incombustibles, la surveillance des départs de feu, les moyens de lutte, l'assurance etc. Pour les gonflements des sols argileux en conséquence des aléas sécheresse et température, il faut éviter de construire en zone sensible et réaliser les fondations appropriées. Les protections étant prévues pour un niveau d'aléa de référence, il faut vérifier régulièrement l'évaluation de cet aléa (notamment en considération des impacts d'aléas qui le dépassent, jusqu'aux extrêmes) et examiner s'il risque de se cumuler avec d'autres, surveiller le maintien de la cohérence avec les attentes de la société (le risque acceptable), assurer la maintenance et veiller à éviter les effets pervers (densification des installations, installation de populations non informées derrière les protections vulnérables aux extrêmes). Le rapport n'aborde pas non plus la question la vulnérabilité globale qui résulte des limites de la planète, ce qui est étonnant car l'effet de serre en est bien une des conséquences (limites du volume de stockage pour le CO2 émis). Un passage du chapitre 5 évoque le lien controversé entre changement climatique et conflits pour l'accès aux ressources venues rares (l'eau en cas de sécheresse...). Cette perspective de l'aggravation des conflits pèse sur l'avenir de façon absolument majeure, mais le rapport devrait signaler que les plus terrifiants sont déclenchés par le partage des rentes - dont celle du pétrole n'est pas l'unique exemple- et leur emploi dans les armements. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	Noted.
74	<p>OG 7- Le SREX néglige deux outils spécifiques de la RRC auxquels il aurait dû porter une réelle attention car ils sont centraux dans la méthodologie de la RRC et seront à prendre en compte dans une conception articulée de l'adaptation au changement et du développement. - les réactions et secours immédiats (secondes, minutes au plus) au moment du déclenchement d'un événement extrême. C'est, comme le rapport et l'expérience le soulignent, d'abord le rôle du voisinage direct. Mais la sécurité civile a spectaculairement progressé, dans la plupart des pays, par son organisation et les technologies mises en oeuvre. - les retours d'expérience (lessons learned), base de la RRC, dont la pratique s'est beaucoup répandue et systématisée dans toutes les catégories de risques collectifs (naturels, industriels, épidémiques) pour ajuster régulièrement les mesures de gestion (ces ajustements ayant pour origine une progression des connaissances historiques ou physiques, des modifications des systèmes technologiques et sociaux, et, last but not least, le changement climatique comme souligné au point 1). Les case studies tels que ceux qui sont présentés au chapitre 9 pourraient (ou auraient pu) servir de base à des retours d'expérience s'ils comportaient une discussion des mesures à prendre et faisaient l'objet d'un suivi de l'efficacité de celles-ci. Il aurait été bon de rappeler que c'est l'expérience de la crise, chez soi et chez les autres qui suscite la conscience de la prévention nécessaire, qui est le moteur social du progrès dans ce domaine. On devrait même ajouter que l'exercice de retour d'expérience, dans la mesure où il implique les partenaires concernés, est en lui-même une occasion de progrès social et politique, qui dépasse son objet propre : il constitue une stimulation et un exercice pour une bonne gouvernance. Le cas du Bangladesh en témoigne. (BOURRELIER, PAUL-HENRI, AFPCN)</p>	Noted.

#	Comment	Response
75	OG 8 - Les approches systémiques des désastres et du développement sont présentées de façon équilibrée mais un peu trop abstraite dans le chapitre 8, montrant la complexité des boucles de rétroaction, l'usage et les limites des modèles. Le concept et les exemples concrets des politiques sans regret auraient mérité des développements peut-être en liaison avec les case studies. La section 853 sur les winners and losers. du changement climatique est trop embryonnaire pour une question aussi importante sur le plan pratique du financement et de l'impact financier global mais aussi sur celui des valeurs morales de l'équité. La viabilité des transferts par l'assurance, la nécessité de partenariats publics-privés pour élargir autant que possible les moyens à la hauteur des défis posent des problèmes sur lesquels les études sur modèles sont encore à développer en valorisant les expériences diverses au niveau des communautés, des Etats, de la profession et d'institutions financières internationales. L'Europe a en la matière une diversité de réalisations qui peuvent servir d'exemple. (BOURRELIER, PAUL-HENRI, AFPCN)	Topics addressed in the underlying chapters reflect the scope of those chapters, as defined in the report outline.
76	OG 9- Les sections des chapitres qui traitent de l'innovation sont éparées et sommaires. Les progrès des instruments de partage de la connaissance et des réseaux sociaux sont de nature à transformer les réactions des populations, leur appropriation des risques. Une réflexion particulière serait justifiée. Quant à la recherche : le SREX n'évalue pas et ne hiérarchise pas les programmes de recherche qui se déduisent de son analyse. C'est tout à fait regrettable car c'est une façon d'apprécier la vision et la dynamique de progrès recommandée. Il se concentre trop sur le transfert des technologies des pays développés vers les pays pauvres, alors que dans ces domaines notamment il faut encourager la recherche de technologies adaptées aux pays moins développés et aux pays émergents. (BOURRELIER, PAUL-HENRI, AFPCN)	This topic is considered as supported by assessment of the underlying literature.
77	Very impressive compilation of present knowledge about this topic. Congratulation! (Langniss, Ole, Fichtner GmbH & Co KG)	Thank you.
78	Each of the chapters is rather written in a stand alone mode, but chapters should be linked to become part of a comprehensive report: the texts need considerable shortening, repetitions should be avoided, basic concepts should not be repeated in each chapter (not always consistently), the definitions in ch 1 and 2 should be used throughout the text, no need to repeat all the time the same information. (GERMANY)	Overlaps and consistency have been carefully considered and improved in revision of the report.
79	Communication among CLAs of the different chapters should be intensified to avoid duplications and to structure the whole report along a single thread. (GERMANY)	Such communication has indeed improved the degree to which the report is free from redundancies, with appropriate linkages among chapters.
80	Boxes: Their use should be limited. The language used in boxes should be precise and short. (GERMANY)	Noted.
81	Some chapters contain FAQs or address research gaps. These should be added to each chapter, or to the report as a whole. (GERMANY)	These elements of chapters have been considered and revised. Identifying research gaps is not within the core mandate of an IPCC report, although are implicitly discussed in the context of uncertainty.
82	Executive Summaries should always start with one sentence on the subject of the chapter. (GERMANY)	This is not a strict requirement for executive summaries in the report.
83	The uncertainty guidance note issued recently must be strictly applied throughout the report. The use of the agreed terms should be indicated by italic letters. (GERMANY)	Treatment of uncertainties has been very carefully considered in revision of the report, with application of the uncertainties guidance note.
84	Policy makers will not have the time to read the chapters in detail, therefore the information provided in the executive summaries and even more in the SPM is of utmost importance. The executive summaries need careful rewriting; they should provide the most important information in a condensed form, obvious statements and repetitions should be avoided. (GERMANY)	Executive summaries have been very carefully considered and revised in revision of the report.

#	Comment	Response
85	Basis findings of the report should not include trivialities and obvious statements nor should these be printed in bold letters (e.g. SPM, p8, I33: Observed and projected trends in exposure, vulnerability, and extreme events can provide guidance in designing risk management and adaptation strategies, policies, and measures. The importance of these trends for decision making depends on their magnitude and degree of certainty at the temporal and spatial scale of the risk being managed and on the available capacity to implement risk management options.) (GERMANY)	Noted.
86	The country of Reinhard Mechler should be Germany throughout the report. (GERMANY)	Noted.
87	All comments are cut off after one short line and the cells are not divided by visible lines. It is very unpleasant to work with this tool. (GERMANY)	Thank you for your patience.
88	The explicit use of the values 100% and 0% percent in the revised likelihood scale (Guidance Notes by Mastrandrea et al.) seems inappropriate in the IPCC context. From a statistical point of view this does not make sense, since e.g. hypothesis tests practically can never reach these values. Modeling results or expert views, of course, may have such outcomes. However, even in the case that 10 out of 10 experts have the same opinion this does not necessarily mean that we can be absolutely certain about the outcome. Experts can be mistaken. And so do models. We still have to be aware of the model deficiencies, the fact that they all have more or less common origins and are all based upon the same knowledge level, which means that up to now no model ensemble is absolutely trustworthy, no matter how many members it has. Therefore it may well be interpreted as overconfident, which might be dangerous especially from the political point of view (e.g. climate skeptics). I would therefore prefer the old terminology with the use of greater (e.g. >99% for virtually certain) or lower than. (GERMANY)	The guidance has been misunderstood. The likelihood terms provided correspond to ranges.
89	SREX shows that disaster prevention is a key factor for climate change adaptation – this should be acknowledged as a step towards the integration of disaster risk management and climate change adaptation (precautionary principle). (GERMANY)	This point has been considered.
90	The Special Report has a focus on general disaster prevention research, which is in conflict with the overall objective of SREX (relationship of climate change adaptation / extreme events / disaster risk management). (GERMANY)	Disaster prevention is considered in the broader context of the report.
91	Chapters 5,6,7: These chapters should more linked in content and refer to each other, and be straightened. (GERMANY)	The relationships among these chapters have been carefully considered.
92	Some 'likelihood' statements make sentences difficult to read - particularly if they are talking about past observations- it would be better to make a statement and then put the likelihood or confidence level in brackets. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Clarity of communication has been carefully considered in presentation of key findings in the report.
93	Chapters 5,6,7: The naming of these Chapters was inconsistent and I wondered why for example climate extremes were managed at the local level, yet extremes and disasters were managed at the national level. It might be worth considering if this distinction is appropriate (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The chapter titles reflect the outline approved for the report.
94	Chapters 5,6,7: There seems to be quite a lot of overlap and it would be useful to see more consideration of the synergies across scales (I felt that S 7.6 didn't really capture these issues well enough), or distinguishing more between the measures. Why for example is adaptation only considered a process in Chapter 5 when it clearly must be considered in this way at a national level. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Relationships among scales have been carefully considered in revision of the report.
95	Chapters 5,6,7: One important distinction that didn't seem to come through is the relative powers/advantages of different national vs. local governance structures? Do some risk management measures work well in local or state led initiatives etc. How can national government facilitate local government to achieve goals etc. What can be achieved locally, but not nationally and vice versa. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Options appropriate to the different scales have been discussed in the final report.
96	This is a really nice synthesis of the issues. However, I did feel that there seemed to be a fair amount of repetition in the report across the chapters - I guess that is inevitable given the way in which these reports are authored not to mention their scope, but again this does hide some of the messages. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Overlap among chapters has been reduced in revision of the report.

#	Comment	Response
97	The use of Latin words throughout the report such as 'inter alia' are unlikely to be familiar to those with non Latin-based languages and should be avoided - at least before translation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Noted
98	While the goal of the report is to advance climate change adaptation, the report should also endeavour to speak to the Disaster Risk Reduction (DRR) community and assist in drawing these two communities together. This lens should be applied to all chapters, but particularly the SPM. This is an important opportunity for the IPCC to demonstrate wide policy relevance. (CANADA)	Linkages among adaptation and disaster risk reduction and management have been carefully considered and reflected in the final report.
99	To maintain focus and clarity, effort should be made to focus the discussion on understanding and managing the risks of extreme events and disasters, and avoid discussions of adaptation broadly (other than in the valuable context piece provided by Chapter 1). While it is important to note that not all disasters are triggered by statistically extreme events, the statement on p.1 of SPM that this report assess the influences of climate change on exposure and vulnerability and on weather and climate events is too broad. Such discussions are more appropriate for the AR5. (CANADA)	This focus is maintained in the report.
100	There were several sections in various chapters of the report that indicated that information or references would be added later. It is not acceptable for a second order draft not to contain all the information that the writing team intends to include as part of the chapter. New material added after the second order draft does not undergo expert or government review, and could compromise the review process. Please avoid this in future reviews for the AR5. (CANADA)	This situation is unfortunate and this point has been carefully noted.
101	In reading the SPM and chapter 3 (at least so far), I was struck by the absence of a general framing discussion of the general nature of the poleward shifts of climatic zones (e.g., the subtropics, storm tracks, etc.), modified by regional orography, etc. As these shifts occur, the general nature of extremes will shift, especially in the areas where the retreating equatorward edge of zones no longer covers a region and it is overtaken by the poleward moving edge of the more equatorward zone. Thus, for example, the equatorward edge of the mid-latitudes will become more like the subtropics and so typically experience more intense dry periods, and the storm tracks will shift poleward, bringing heavier precipitation to regions toward the pole that are not geographically well-suited to the heavier rains (an example here is the US Great Plains, where convective precipitation zones where weakening cold air output from the Arctic will allow more northward penetration of moist Gulf of Mexico air, leading to heavier precipitation further north that would likely not lead to floods in states near the Gulf coast, but will do so when the precipitation--as heavy rain or heavy snow--can cause severe floods in the northern Great Plains. I thus think that providing general context about how the general circulation is shifting would provide a useful introduction and context for explaining the subsequent discussion of changes--and would also be helpful in explaining why one can have both floods and droughts, and that even if there is no general change in area experiencing some extreme, there can be changes in the location of such extremes that can be very important. (MacCracken, Michael, Climate Institute)	Large-scale circulation changes should affect extremes in some regions and for some extremes. The major question related to latitudinal shifts in the general circulation, which would affect storm tracks, is addressed at length in 3.4.5. The discussion concludes that the available evidence suggests the effects of such shifts are more complex than is sometimes believed, leading to low confidence in regional projections of shifts. Thus the available literature precludes us pushing the point raised by the reviewer very far. As well, if such an effect was important on the scale of the relatively large regions considered in this report, then we could expect to see it expressed in the GCM simulations and projections discussed throughout Chapter 3. There seems little evidence of this, suggesting that (with the exception of some limited regions) these shifts do not seem to be of primary importance in determining changes in extremes. Nonetheless, following a similar comment on chapter 3 material, a general point regarding the relevance of large-scale changes in climate patterns is now briefly addressed in Section 3.1.6: "For instance, projections typically include some regions with a tendency toward wetter conditions and others with a tendency toward drier conditions, with some regions displaying a shift in climate regimes (e.g., from humid to transitional or transitional to dry). Some of these regional changes will depend on how forcing changes may alter the regional atmospheric circulation, especially in coastal regions and regions with substantial orography". This being a very general point and given the strong space limitations, it does not seem to be useful in the context of the SPM, although the readers can find it in chapter 3.

#	Comment	Response
102	There are quite a number of places where the word "may" is used--this is not a word in the IPCC lexicon, and can mean anything from 1 to 99%--such statements are useless. The word "may" needs to be sought out and banned throughout the report. (MacCracken, Michael, Climate Institute)	Clarity of communication in presentation of key findings has been carefully considered, using the formal IPCC uncertainty language.
103	Even though many critical claims can be made, the report is a laudible attempt to bring together such diverse knowledge on a theme of which more integrative academic level research has started only recently. This hopefully also helps to systemize the abundant tacit knowledge in this theme area. (FINLAND)	Thank you.
104	The Executive Summaries of chapters 1-8 are not written in a consistent structure and style. (FINLAND)	The executive summaries in the final report are more consistent in structure and style.
105	Please take into account the information and references on Forest Fires in Mediterranean Climate sent to SREX supporting material e-mail address. (SPAIN)	Noted.
106	Some works have been done at European level on critical infrastructures. For information, Directive 2008/114 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection establishes a procedure for the identification and designation of European critical infrastructures ('ECIs'), and a common approach to the assessment of the need to improve the protection of such infrastructures in order to contribute to the protection of people. (SPAIN)	Noted.
107	From the perspective of the French insurance sector, this draft report is exciting as it addresses in each chapters, aspects of the contributions to CCA of pre-disaster financial risk transfer mechanisms, such as insurance, micro insurance or new alternative risk transfer solutions, although practical advice for policymakers remains nearly absent (apart from some usefull answers to FAQs). To that extent, the report's ambition would rather be to provide a major educational impact to policymakers, with respect to integrated risk management, especially on decision making between risk reduction and risk transfer, at each governance level. The geographic scope of the report should be more precisely indicated: it is limited to developing countries? With respect to risk transfer issues, many developed countries are in a situation comparable to developing countries, with low potential of economic resilience to individuals and economic actors, unless State commits itself to ex post recovery financing. Although real efforts, the general impression so far is nevertheless that this new report does not take advantage in this particular respect of achievements provided by recent works such as the special report issued Nov 2010 by the World Bank-United Nations / GFDRR on the Economics of Effective Prevention (Natural Hazard, Unnatural Disasters). (NUSSBAUM, Roland, Mission Risques Naturels)	This point has been noted. The report scope is not limited to developing countries.
108	Insurance systems organised in a public private partnership with State such as in New Zealand, Norway, Spain and the French NatCat regime are mentioned, but should be more questioned in their strengths and weaknesses, to clarify more extensively the necessary linkages between risk reduction and insurance, to make the whole system sustainable. For instance, the French PPP can be characterized as three fold: on the technical level, as insurability is subject to compliance to land use planning rules and building codes, on the financial level, as State operates as reinsurer of last resort, on the political and ethical level, as the regime is under specific legal requirements, such as : compulsory extended coverage on top of the property insurance contract, to avoid adverse selection, fixed premium and deductible rates, with significant increase of deductible in case of non compliance to risk prevention requirements and also a specific feature of non excusion of policyholders. Almost all property assets, be it personnal lines or commercial lines, are therefore covered under this scheme and the proportion of insured damages out of the total economic damages comes out to be the highest in the world (nearly 60 %). (NUSSBAUM, Roland, Mission Risques Naturels)	These systems have been further considered in revision of the report.
109	Tables 2.4 and 2-5 needs refences. On table 2-5 would be good to mention the chapters or pages of the AR4 WG II contribution (Suarez, Avelino, Institute of Ecology and Systematic, Cuban Environmental Agency)	Based on other other review comments and revisions, these tables have been removed from the report.

#	Comment	Response
110	The report should pay more attention to the relative importance of trends and variability in extremes, including variability on decadal and seasonal timescales. This is a key consideration for many decision-makers -- this report should provide some insight in how they have to weigh how to use information on trends in extremes for decisions that play out at a range of timescales. (also in the context of general move towards providing climate information in the context of "climate services", including provision of climate information across a range of timescales) (NETHERLANDS)	See Chapter 3 for an assessment of physical changes in the climate system, including modes of natural variability.
111	There is much to like in this multi-faceted chapter. The chapter does well in incorporating vulnerability literature. However, although we appreciate the need to be extra careful to avoid embarrassing gaffes, we feel this chapter is in danger of tending to the other extreme: to say too little. 1. There is the lack of a strong connecting narrative ('Leitfaden'), The subchapters would benefit from connecting and concluding sentences bringing out this story, and guiding the reader about what is really important in the text. This is compounded at the micro textual level, where the style wants tight editing, especially articles (the, a) are missing in many locations. The word 'not' fatally changing the meaning of the sentence, is missing in the sentence starting 'However, if carefully managed,' (bottom of p. 37) - it should read 'However, if not carefully managed'! 2. There is an awful lot about what is not known or not sufficiently known. However, this can be too careful. For example, about psychological effects after disaster – however in the literature on social psychology and the health sciences (e.g. on Post Traumatic Stress Disorder) a lot has been published about this. There is solid literature from the psychological discipline about this, e.g. Bonanno and Galea, S. (2007). 3. The chapter's focus is very 'systemic'. While it is common for climate studies to look at socio-ecological systems, it misses out on specific groups of people within those systems, which is important to disaster analysts. The security of the whole is not necessarily the sum of its parts, so individuals or particular groups may be disadvantaged despite the system doing very well. Disaster analysis focuses on specific people and their natural environment. With some very good exceptions, the 'people' part is only weakly developed in this chapter. The abstract seems more balanced in this than the report. The importance of this is in that there seems to be a growing awareness that climate change should be seen as a risk compounding the effects of other every-day risks, especially in the developing world: poverty, resource degradation, political instability, disease, unemployment, traffic. Increased climate variability can tip already weak systems out of balance. For example, Van Dijk and de Bruijn's study of the Fulbe (1995) and Katrina Allen's study of the impact of floods on everyday life in Panay, Philippines (2006) are examples showing that a flood can be a minor inconvenience compared to the problems of everyday life. 'In most African urban areas, these [everyday hazards] remain the main cause of premature death and serious injury' (Bull-Kamanga, 2003). This is also important in the context of development. Both the abstract and main text places quite some stress on 'development'. E.g. 'poor development status of communities and countries further increases their exposure to disasters'. This may be true, but areas of 'low development' status can be much more resilient than highly-developed areas. Development however can also increase exposure to risk and socioeconomic disparities, making some groups more vulnerable despite the system as a whole thriving. (Warner, Jeroen, Wageningen University)	This comment is misplaced - not clear which chapter(s) the reviewer wishes to address
112	It is a good report; however, we miss the holistic view on how things are interrelated. There is a lot of information on extreme events, how these might be influenced by climate change and possible measures, processes and organisation on how to meet this. However, little is written about the importance of not implementing measures that will increase the emissions of climate gases and there is little focus on measures that will both mitigate the effects/extreme weather and at the same time can mitigate the climate change in it self. The latter type of measures, which in particular would be securing functional ecosystems that both can be resilient and at also can be important storage for carbon (e.g. wetlands, natural forests), is absolutely mentioned (cf. e.g. ch 6), but very little focus is put on a holistic view in the report. Being an IPCC report it seems strange that not more focus on these close relationships and hence win-win measures for both mitigation to the effects and to the causes. (NORWAY)	As is appropriate for the scope of the report, such interconnections are considered.
113	We think the readability of the report could be significantly improved by highlighting keywords instead of probabilities. (NORWAY)	It is unclear what is meant by this comment.

#	Comment	Response
114	In general some efforts needs to be put into developing new and innovative illustrations in the whole report. (NORWAY)	Graphics have been further developed in revision of the report.
115	About CCA. If IPCC introduces new terms in this report it should be considered carefully. E.g. in this draft CCA is used in ch 6 and 7 and not in the rest of report. We doubt that the abbreviation CCA for Climate change adaptation is useful and recommend that the term is written in full instead: climate change adaptation. Rationale: We should try to avoid too many abbreviations and CCA is so far not commonly used and was not used in AR4. The CCA abbreviation is also used in several other meanings: Climate change agreement, climate change action, Climate Change Australia etc. (NORWAY)	Terminology and abbreviations have been carefully considered in revision of the report.
116	Consider to define "Agreement" better in the report and the SPM (p 11 line 6 in summary for policymakers). It might be described better how "agreement" is operated independent of the term "evidence". (NORWAY)	These terms are further described in the box at the end of the summary for policymakers. They are also further discussed in some chapters of the underlying report.
117	As we can learn from the extremely strong earthquake and tsunami in Japan extreme events occur without ongoing changes in the underlying natural system (please note that I am aware of the fact that earthquakes and ensuing tsunamis are not connected to the climate system but nevertheless they constitute examples for rare events in a natural system). Humankind needs to be reminded of it. A special IPCC report SPM should state this clearly, especially the SPM is a fitting place for such a statement. Extremes are by definition part of 'normality'. We should emphasize the possibility of a changes in the number of extremes. (Kreienkamp, Frank, Climate & Environment Consulting Potsdam GmbH)	This point has been noted, and is emphasised in the discussion of 'extreme' events, and the relationship with natural climate variability.
118	Special reports from the IPCC are the fundamental source of information for all people interested in climate change science. Those reports should follow common good practice frameworks. For example, WMO stated 30 years as an appropriate minimum number of years to describe the mean state of the climate. The WMO Guidelines are adhered to by a vast majority of the scientists. They often ask their policy makers to follow suit. Now, if the IPCC itself uses graphical material or tables as well as interpretations in its reports which apply a different (lower) number of years then it sets not a good example for other scientists and, what's more reduce the comparability of their findings. This is an endless cycle and I strongly urge to intervene and set another good practise example. (Kreienkamp, Frank, Climate & Environment Consulting Potsdam GmbH)	We have tried, where possible, to use 30 year periods, or longer. However, we are dependent on the available literature, and various authors use various time-periods. So we are unable to restrict all our analyses to the usual WMO 30 year time frame.
119	The Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties includes a definition 'About as likely as not'. Which means that it belongs to a non-judgemental category, being neither likely nor unlikely. This kind of information should receive a distinct treatment in colour schemes which are employed for figures. If you have a colour mapping that, e.g., continually extends from red to white to cover the range of warming and then on from white continually to blue to cover the range of cooling the area in the middle (near zero) is given a coloration, too. If, however, a quantity interval is considered 'About as likely as not' this should reflect in a range (and not a point) which is entirely white. (Kreienkamp, Frank, Climate & Environment Consulting Potsdam GmbH)	This point has been noted. Usage of terminology from the uncertainties guidance is consistent throughout the report.
120	We would like to appreciate IPCC, WGII , TSU and also all contributors including colead authors and authors for such a useful and comprehensive report.r.. (IRAN, ISLAMIC REPUBLIC OF)	Thank you.
121	It seems that the Gery literatures were not used. Using this literature should be improved in this report. (IRAN, ISLAMIC REPUBLIC OF)	Where appropriate, non-journal literature has been considered and assessed. A database of sources is available on the website
122	"SPM the ise of the word Lack in this context could be misleading as communities wherever they live have some degree of resilience" (UNITED REPUBLIC OF TANZANIA)	It is not clear what this comment applies to.
123	"clarify ...food systems and food security... as a sector" (UNITED REPUBLIC OF TANZANIA)	It is not clear what this comment applies to.