

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	35062	27	0	0	0	0	Basically chapter 27 is good written and a comprehensive text. However sometimes discussion looks too focused in the specific experience or findings of Argentina and Brazil. This bias could be partly due to the nationality of the lead authors. It is surprisingly for me that Cuba is not considered at all in discussion for Central America and the Caribbean. Cuba is the greatest country in the Caribbean with a significant experience in Climate Change adaptation studies. (Lino Naranjo , MeteoGalicia)	The text has been revised to incorporate this perspective to the extent possible for the case of Central and South America. However, it has to be noted that the focus on the regions you mention is due to a great diversity of studies to be found for those regions. The point you have raised concerning Cuba is beyond the scope of the chapter as the Caribbean does not form part of the area covered by our chapter.
2	37635	27	0	0	0	0	There is way too much weight given to ECLAC documents in this chapter (are these peer-reviewed?) (Hugo Hidalgo, Universidad de Costa Rica)	Requested info on peer-review to Carlos DeMiguel
3	38280	27	0	0	0	0	Looking at figures and tables made for the different chapters, there are similarities (e.g. magnitude of temperature and rainfall changes, impacts on ecosystems...) between chapters because they have they deliver similar information, but for different regions. (Guillaume Simioni, INRA)	Your suggestions have not been incorporated as the figures and tables contain the information for our region.
4	38281	27	0	0	0	0	Having a similar layouts (i.e. same styles and legends, symbols, columns, colors, ...) across the chapters, would help the comparison between regions. Not sure it is important, especially if the readership is different from one chapter to another. It's just a suggestion. (Guillaume Simioni, INRA)	Your suggestion have been addressed by consulting with the TSU to have a consistent layout.
5	38350	27	0	0	0	0	for obvious reasons (amount of data available, historic focus on the area, area covered under particular legislation), the chapter has a clear focus on Brazil and the southern SA countries. However, an area that is undergoing rapid changes and due to its forest resources will play a pivotal role in the REDD initiative and related issues is largely neglected. The Guiana Shield (GS) region of northern SA , whichaccounts for more than 25 percent of the world's remaining tropical rain forests. It is an important area of diversity and endemism within the Neotropics. And even though the forests of the GS have had among the lowest deforestation rates of the world, with very little change over the past decades, rapid economic and social changes are posing increasing pressures on these relatively wellconserved forest ecosystems (see e.g. Bryant, D., Nielsen, D. & Tanglely, L. (1997) The last frontier forests: Ecosystems & economies on the edge. Washington, USA (World Resource Institute). KfW and the Norwegian government, among others, are currently supporting selected countries in the region (e.g. Guyana) financially to facilitate both the implementation of REDD instruments, as well as the creation of a National Park System. traditionally the focus has been on Central Amazonia but it would be wise to broaden the view and include this important and crucially threatened area, which should be reflected in the report. (Raffael Ernst, Senckenberg Natural History Collections Dresden)	We agree with the relevance of the Guiana Shield to be mentioned in this Chapter. However, after the 1997 publication mentioned by the reviewer, hardly anything has been published about the region regarding this topic and we are dealing preferably with material published after 2007. For the final version, we will make sure to mention the relevance of the Guiana Shield and REDD.
6	40586	27	0	0	0	0	I felt that articles relevant to tropical cyclones slant in a scope. The sections of TC in AR5 WGI should be referred to. The following article may be useful for WGII. Murakami, H., Y. Wang, H. Yoshimura, R. Mizuta, M. Sugi, E. Shindo, Y. Adachi, S. Yukimoto, M. Hosaka, S. Kusunoki, T. Ose, and A. Kitoh, 2012:Future changes in tropical cyclone activity projected by the new high-resolution MRI-AGCM, J. Climate. accepted. Murakami H, R. Mizuta, and E. Shindo, 2011: Future changes in tropical cyclone activity projected by multi-physics and multi-SST ensemble experiments using the 60-km-mesh MRI-AGCM. Clim. Dyn. DOI: 10.1007/s00382-011-1223-x. Walsh K, S. Lavender, E. Scoccimarro, and H. Murakami, 2012: Resolution dependence of tropical cyclone formation in CMIP3 and finer resolution models, Clim. Dyn. Murakami, H., and B. Wang, 2010: Future change of North Atlantic tropical cyclone tracks: Projection by a 20-km-mesh global atmospheric model. J. Climate, 23, 2699-2721. Wang, B., H.-J. Kim, K. Kikuchi and A. Kitoh, 2011: Diagnostic metrics for evaluation of annual and diurnal cycles. Climate Dynamics, 37:941–955, DOI 10.1007/s00382-010-0877-0. Murakami, H., and M. Sugi, 2010: Effect of model resolution on tropical cyclone climate projections. SOLA, 6, 73-76. (Toshiyuki Nakaegawa, Meteorological Research Institute)	We have included some of the suggested references but only when they refer to Central America.
7	42183	27	0	0	0	0	In general I find that there are few tables and graphs in this chapter. Especially in sections that present a lot of data such as 27.2.2.2. Trends and Projections in Socioeconomic Conditions, some graphs may greatly help in interpreting the presented trends. (Wouter Buytaert, Imperial College London)	Section 27.2.2.2 already has one figure incorporated presenting the information deemed as most relevant for that section. Space restrictions were an impediment for adding more graphs or tables to the chapter.
8	42186	27	0	0	0	0	Although chapter 27 presents an impressive amount of evidence about climate change impacts, the presentation tends to suffer from being an enumeration of studies. There is a need for further contextualisation and a more logical flow of the presentation (though I presume that will be a focus of the next revision) (Wouter Buytaert, Imperial College London)	The text has been revised to incorporate this perspective.
9	43386	27	0	0	0	0	In general I think this is a comprehensive and well balanced chapter. The structure with impacts, vulnerabilities and adaptation practices analyzed across sectors helps the reader to get an overview and is a strength of the chapter. My impression is that quite an extensive overview of recent adaptation efforts and practices is given but on a relatively broad and sometimes conceptual level. More concrete, 'real-life' adaptation experiences are rather scarce but I recognize that it may be difficult to include those aspects in full breadth. Rather, a certain selection would have to be made. I also had the impression that adaptation experiences with regards to local communities / indigenous people, as well as on the political and institutional level are not very strongly represented. For instance, a very important aspect of adaptation which I have not seen much throughout the chapter are perceptions (by local people but also by decision makers, scientists etc). Some more case studies may be helpful. Even the one existing case study (hydro power) is written on a relatively general, conceptual and economic level. I recommend a case study (or box) on adaptation experiences with local people. Furthermore, I think the section on adaptation experiences and adaptation barriers are short but most probably central aspects for the future of many regions in Central and SA in terms of adaptation. Therefore I recommend to expand these sections with more material and considerations. (Christian Huggel, University of Zurich)	Given the various comments we received along the same lines, we rewrote part of the chapter in order to give more new examples of local adaptation. In particular, we now refer to recent works by Castellanos et al., 2012; Eakin et al., 2013; Carey et al, 2012. Unfortunately, the number of papers describing such cases are still scarce. There is no doubt that in the coming years, the experience acquired on these topics will help referring to a much larger number of articles.

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10	44233	27	0	0	0	0	number and quality of figures should be increased (Georg Kaser, University of Innsbruck)	Your suggestion has been addressed by revising whether we can add further tables and graphs, as well as by having improved the quality of the existing ones.
11	44565	27	0	0	0	0	Section 27.2.1.1: Temperature and precipitation observations – Please update to ensure consistency and cross-referencing with relevant WGI AR5 chapters (in particular Ch2 and Ch14), and the SREX Chapter 3 in regards to extremes. WGI AR5 Chapter 14 should be referred to regarding the observed changes in large-scale modes. (Thomas Stocker, IPCC WGI TSU)	Yes, we have done that, in consistency with the AR5 chapters and the SREX
12	44566	27	0	0	0	0	Section 27.2.1.2: Temperature and precipitation projections – Please update to ensure consistency and cross-referencing with relevant WGI AR5 chapters (including the Annex I: Atlas of global and regional climate projections). (Thomas Stocker, IPCC WGI TSU)	Yes, we have done that, in consistency with the AR5 chapters and the SREX
13	45525	27	0	0	0	0	Excellent FOD of the chapter. Congratulations to the writing team. (Avelino Suarez, Institute of Ecology and Systematic, Cuban Environmental Agency)	Thank you very much, we appreciate your opinion.
14	46127	27	0	0	0	0	There are several cases of Latin American countries (Mexico, Brazil, Guatemala, Ecuador, Peru, Honduras, Nicaragua, to name some) mentioned in the pervious chapters. Maybe they were but if not, it would enhance this Chapter if they were also included here. (Luis E. Garcia, World Bank)	The text has been revised to incorporate it.
15	46455	27	0	0	0	0	Chapter 27: Central and South America (Review of the Chapter, from the beginning up to: 27.2.1.2. Climate Projections. Also: 27.3.6. Renewable Energy). (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Ok
16	46467	27	0	0	0	0	General comments on this chapter: The authors made a very good selection of the main publications related to the Climate change in Central America and South America and the text is, in general, very clear. With respect to the item: 27.3.6. Renewable Energy, there is a large discussion on Hydroelectricity and Bio-energy, but almost nothing on solar and wind energies. The potential of the region is enormous, since it is mainly placed at low and mid latitudes, with the Atacama desert considered as one of the regions in the World with the largest solar power potential and the same for wind power in the Argentina region of Patagonia. Please, extend this part of the Chapter, due to its significance in order to mitigate climate change. (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	It is true that most of the literature on climate change impacts on renewable energy generation is related to hydropower. The only exception is the work by Lucena et al. (2009; 2010b) on wind power generation. This raises the need for further research. For the last version we will look for further information on wind and solar in the region ad add some information about the potential of the region
17	46923	27	0	0	0	0	In general, this chapter tends to have a strong bias towards the development of hydropower, despite concerns regarding the impact of dams on river fragmentation and community livelihoods, reservoir emissions, the risk of over-dependence on hydropower, and the indigenous rights violations that have so far plagued many existing and planned hydropower projects. This is especially the case with the case study on hydropower, which seems to ignore these same risks that have been expressed elsewhere in this chapter and in Chapter 3 on Freshwater. (Katy Yan, International Rivers)	We disagree with this comment. There is no policy prescriptive language towards building or not building hydropower facilities. The chapter provides an assesment of the potential impactos of climate change on this relevant source of electricity in the region.
18	48173	27	0	0	0	0	It seems warranted to add one paragraph to the executive summary giving guidance on the role of no-/low-regrets measures in this region. The underlying chapter text should also be strengthened. (Jochen Harnisch, KfW)	Considering other comments we received we decided to limit general concepts and focus more on specific cases described in the literature for the region.
19	48174	27	0	0	0	0	The limited robustness of regional climate projections e.g. for rainfall, river run-off, droughts and floods should also be mentioned in the executive summary as a major obstacle to implementing dedicated adaptation projects on a larger scale in this region. (Jochen Harnisch, KfW)	Actually, adaptation should not be based on climate change model projections. Rather, adaptation should mainly focus on vulnerability diagnostics, first measures to adapt to present climate, and make use ONLY on relevant climate model informations needed for the specific vulnerability under study. This clearly allows not to depending on climate model projections and therefore reducing the impact of uncertainty on decision-making. This approach actually allows to acting NOW making use of future trends to avoid maladaptation.
20	48234	27	0	0	0	0	References – Fearnside Abril, G., F. Guérin, S. Richard, R. Delmas, C. Galy-Lacaux, P. Gosse, A. Tremblay, L. Varfalvy, M.A. dos Santos & B. Matvienko. 2005. Carbon dioxide and methane emissions and the carbon budget of a 10-years old tropical reservoir (Petit-Saut, French Guiana). Global Biogeochemical Cycles 19: GB 4007, doi: 10.1029/2005GB002457 Fearnside, P.M. 2002. Greenhouse gas emissions from a hydroelectric reservoir (Brazil's Tucuruí Dam) and the energy policy implications. Water, Air and Soil Pollution 133(1-4): 69-96. Fearnside, P.M. 2005a. Do hydroelectric dams mitigate global warming? The case of Brazil's Curuá-Una Dam. Mitigation and Adaptation Strategies for Global Change 10(4): 675-691. Fearnside, P.M. 2005b. Brazil's Samuel Dam: Lessons for hydroelectric development policy and the environment in Amazonia. Environmental Management 35(1): 1-19. Fearnside, P.M. 2012. Carbon credit for hydroelectric dams as a source of greenhouse-gas emissions: The example of Brazil's Teles Pires Dam. Mitigation and Adaptation Strategies for Global Change doi: 10.1007/s11027-012-9382-6. Fearnside, P.M. & S. Pueyo.. 2012. Underestimating greenhouse-gas emissions from tropical dams. Nature Climate Change 2(6): 382–384. (Philip Fearnside, INPA)	This debate has been included in the text.
21	51644	27	0	0	0	0	1) Overall – In preparing the 2nd-order draft, the chapter team should prioritize making each section of the chapter a polished, comprehensive treatment of topics considered. From these sections, the chapter team is then encouraged to maximize the utility of its findings, ensuring that they are robust, compelling, and nuanced. Themes to consider informing in constructing findings include decisionmaking under uncertainty, risks of extreme events and disasters, avoided damages, and limits to adaptation. To these ends, the author team has prepared a careful and thorough 1st-order draft, which will provide a strong foundation for subsequent work on the chapter. In effort to inform further chapter development, I provide some general and specific comments below. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate this perspective.

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22	51645	27	0	0	0	0	2) Highlighting key findings -- In developing the 2nd-order draft, the chapter team should aim to present key findings across the sections of the chapter, using calibrated uncertainty language to characterize its degree of certainty in these conclusions. In this way, the reader of the chapter will be able to understand how the literature reviews and syntheses in the chapter sections--the traceable accounts--support the conclusions of the chapter, especially those presented in the executive summary. Additionally, identification of key findings throughout the chapter will enable the author team to increase specificity in characterizing key trends and determinants in the context of the executive summary. (Katharine Mach, IPCC WGII TSU)	We did it
23	51646	27	0	0	0	0	3) Usage conventions for calibrated uncertainty language -- Where used, calibrated uncertainty language, including summary terms for evidence and agreement, levels of confidence, and likelihood terms, should be italicized. In addition to incorporating these terms directly into sentences, the author team may find it effective to present them parenthetically at the end of sentences or clauses. Casual usage of the reserved uncertainty terms should be avoided. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate this perspective.
24	51647	27	0	0	0	0	4) Specificity of described observations and projections -- The chapter team has done a nice job of ensuring specificity in describing observed and projected impacts, while still presenting information concisely. For examples given in the chapter, the author team is encouraged to continue ensuring specificity: indicating relevant time periods, geographic areas, etc. for observations; indicating relevant time frames, climate/socioeconomic scenarios, geographic regions, or other assumptions for projections; and characterizing key driving factors where ranges of outcomes are presented. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate this perspective.
25	51648	27	0	0	0	0	5) Conditional constructions -- The chapter team should continue using conditional constructions that explicitly separate physical changes from corresponding conditional impacts. With such constructions, the author team can also separately characterize the degree of certainty for a physical change and the corresponding conditional outcome where appropriate. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate this perspective.
26	51649	27	0	0	0	0	6) Figures -- Figures, as well as tables, represent an important and effective vehicle for clear communication of assessment and corresponding key findings. The chapter team has developed some strong tables and figures already and would benefit from continuing to develop figures, especially, to complement assessment in the chapter text. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate your suggestion and has been addressed by revising whether we can add further tables and figures that complement the assessment text.
27	51650	27	0	0	0	0	7) Plenary Approved Outline -- In further developing the chapter, the author team should ensure that all topics on the plenary approved outline are clearly reflected in the chapter's organization and content. (Katharine Mach, IPCC WGII TSU)	We did it
28	51651	27	0	0	0	0	8) Coordination across the Working Group 2 contribution -- In developing the next draft of the chapter, the author team should consider treatment of topics not only in this chapter, but also across the report as a whole. For each topic, the chapter team should ensure that treatment here is reduced to the essence of what is relevant to the chapter, with cross-references made to other chapters as appropriate, also minimizing overlap in this way. (Katharine Mach, IPCC WGII TSU)	The text has been revised to incorporate this perspective.
29	51652	27	0	0	0	0	9) Harmonization with the Working Group 1 contribution to the AR5 -- At this stage of chapter drafting, the author team should carefully consider the working group 1 contribution. Wherever climate, climate change, climate variability, and extreme events are discussed, the chapter team should ensure that their treatment is harmonized with the assessment findings of working group 1. (Katharine Mach, IPCC WGII TSU)	We have done that, and refer to WG1 chapters whenever we need it, both for observations and projections.
30	52829	27	0	0	0	0	The chapter is well developed. There is a good analysis supported by the literature available. Economic valuation of ecosystem services is adequate. Perhaps it would be desirable to give greater length in the text to other services such as navigation, river fishing and tourism have grown exponentially in South America in the last 10 years. It should be noted that these three forms of utilization are particularly sensitive to decreased river flows as a result of reduced rainfall. (Juan Jose Neiff, CONICET - UNIVERSIDAD NACIONAL DEL NORDESTE)	This is a good comment however through the assessment we couldn't find literature that supports those types of potential impacts.
31	53636	27	0	0	0	0	When presenting projected impacts, please include the time frame, scenario, and other assumptions. This is done in most instances but is missing in a few, including in the Executive Summary. (Kristie L. Ebi, IPCC WGII TSU)	The text has been revised to incorporate this.
32	53637	27	0	0	0	0	Please check consistency of statements with those in the relevant sectoral chapters, such as food systems, coastal zones, and human health. (Kristie L. Ebi, IPCC WGII TSU)	It has been done
33	54543	27	0	0	0	0	GENERAL COMMENTS: I would like to thank the authors for their work on the FOD. When considering the expert review comments received on your chapter and the next round of revisions, I suggest several overall priorities. (1) Keep in mind that the preparation of the SOD is the time to ensure that each section of the chapter presents a comprehensive treatment of relevant literature, and that the Executive Summary presents findings that capture the key insights that arise from the chapter assessment. (2) This is also the time to focus on distilling the chapter text, not just fine-tuning wording but editing with a critical eye to improving quality by making discussions succinct and synthetic, while still being comprehensive. (3) Cross-chapter coordination is also important at this stage, as it should now be possible to identify topics that overlap with other chapters and to coordinate with other chapter teams to minimize that overlap. (4) Cross-Working Group coordination is important as well, and relevant chapter sections should cross-reference chapters from the other Working Groups, particularly in the case of statements about changes in mean or extreme climate conditions that are assessed in the contribution of Working Group I. (5) Continue to look for opportunities for the creation of figures that synthesize across results from the literature. (Michael Mastrandrea, IPCC WGII TSU)	Thank you

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34	54544	27	0	0	0	0	EXECUTIVE SUMMARY: The author team has made a good start on the Executive Summary, and has paid clear attention to providing traceable accounts for assessment findings and highlighting the location of those traceable accounts in the Executive Summary. For the SOD, please develop assignments of calibrated uncertainty language (e.g., levels of confidence) for each finding. In general, I would recommend the author team continue to strengthen the linkage between support in the chapter text and assessment findings in the Executive Summary. In this context, I suggest providing some explanation of the calibrated uncertainty language used in the Executive Summary (once it is fully developed) in the corresponding chapter section(s) where the traceable account appears for each finding, for cases where this is not done already. For example, in situations where confidence is not high, it would be useful to understand why the author team has made this judgment (e.g., is there a lack of robust evidence?, are there multiple perspectives in the literature?). In situations where confidence is high or likelihood language is employed, what is the evidence that forms the basis for these assignments? Succinct descriptions in the chapter text of this type will both highlight the basis for ES findings and help explain the author team's assessment of the literature. We in the TSU are available to discuss these issues as well if that would be of use. (Michael Mastrandrea, IPCC WGII TSU)	The text has been revised to incorporate this perspective. Please see revised sections xxx.
35	54900	27	0	0	0	0	The author team should update the reference list and remove citation inconsistencies between in text citations and full citations given in the reference list. Please see supplementary document named WG2AR5-Chap27_ Reference Checks.pdf at https://ipcc-wg2.gov/AR5/author/FOD/SuppMat (Monalisa Chatterjee, IPCC WGII TSU)	Your suggestions concerning the references has been incorporated, please see in text citations and full citations for their update.
36	54901	27	0	0	0	0	Literature permitting, the chapter team is encouraged to add more cases to support their findings. Moreover, it would be useful if the enabling or deterring factors, drivers etc., are explicitly stated where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	The text has been revised to incorporate this perspective and more cases were added where possible.
37	54902	27	0	0	0	0	The author team may wish to increase the fonts for their figure to make it more legible. (Monalisa Chatterjee, IPCC WGII TSU)	Your suggestion concerning the figure layout has been considered and a layout achieved with the support of the TSU making the figures more legible where possible.
38	40653	27	1	1	0	0	A General comment about the chapter is that it has a strong focus on Brazil and the south cone comparing with Central America, the Andean Countries in the North and Guyana, Suriname. There is information available for most of the other countries. (Carmen Lacambra Segura, Grupo La era)	It is not a stronger focus but a reflection of the fact that for Brazil and southern cone there is a comparatively larger amount of peer-reviewed publications.
39	40654	27	1	1	0	0	Although adaptation alternatives are mentioned, examples and figures could be added, similar to how it has been done for the impacts. Practical Action, USAID, and other organizations working in the region have several examples. (Carmen Lacambra Segura, Grupo La era)	In the adaptation section referring to terrestrial ecosystems, our option was to use a table.
40	37618	27	1	11	1	11	Erik Alfaro should be changed to Eric Alfaro (he works with me and his name was spelled incorrectly) (Hugo Hidalgo, Universidad de Costa Rica)	It will be done
41	48449	27	1	12	0	0	Carlos J. de Miguel (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	It will be done
42	48450	27	1	14	0	0	Joseluis Samaniego (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	It will be done
43	40655	27	1	34	4	27	Perhaps add a paragraph on cities as they have been included in the text of the chapter (Carmen Lacambra Segura, Grupo La era)	Ok
44	40656	27	1	34	4	27	The summary and the chapter as a whole have no links between climate change and the private sector in the region. Agriculture is mention but as a livelihood, not as a sector in the economy. In general, there seems to be no link on how climate change will impact all sectors of the economy and the adaptation strategies that are being developed in the region. The FOMIN (MIF) and BID (IDB) have started doing work on this. (Carmen Lacambra Segura, Grupo La era)	This is an important gap in the text. Other than the IDB material mentioned, grey literature regarding the TEEB for Business global and in Brazil is also available and we will make sure to include mention in the last version of this text.
45	46456	27	1	36	1	36	Please, define SESA in: "have been identified in CA, Northern SA, Northeast Brazil, SESA and the West Coast of SA",since it is the first time it is introduced in this Chapter. (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	We have done that
46	47783	27	2	0	4	0	Most of the executive summary neglects discussion of climate change or climate change impacts. In my opinion, the summary needs to be completely re-written to provide demonstrable evidence of climate change impacts in the region. (Mark Carey, University of Oregon)	We have included the reviewer's suggestions in the new version of the ES.
47	51653	27	2	32	0	0	Executive Summary -- In subsequent work on the executive summary, there are several aspects of development for the author team to consider further: 1st, for the key findings presented in bold text and wherever else relevant, the author team should use calibrated uncertainty language to characterize its degree of certainty in these conclusions. 2nd, the author team should consider further opportunities to enhance the specificity of trends and determinants characterized, illustrating with nuance where the current state of understanding lies. (Katharine Mach, IPCC WGII TSU)	Discussions on climate trends and projections now include (in the new version of the ES), statements on uncertainties and confidence, based on the SREX, the AR5 WG1 Chapters and the WG1 Atlas.
48	35054	27	2	34	2	35	It should say "Effect of climatic variability and extreme events have been severely affecting Central America (CA) and South America (SA) over the recent years". (Lino Naranjo , MeteoGalicia)	Changes have been made and appear in the revised version of the ES.
49	42901	27	2	34	2	35	The sentence "Climate variability and extreme events have been severely affecting" could be redacted more accurately "The extreme phases of climate variability and weather extremes have been severely affecting" (José Daniel Pabón-Caicedo, Universidad Nacional de Colombia)	Changes have been made and appear in the revised version of the ES.
50	47775	27	2	34	2	38	The bolded statement says extreme events "have been severely affecting" yet this point has no mention of any impacts/effects whatsoever. You can say there are extreme events based on the text that follows on lines 35-38. But you cannot say there are "effects" because you don't provide any evidence. (Mark Carey, University of Oregon)	Changes have been made and appear in the revised version of the ES.

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51	51654	27	2	34	2	38	It would be helpful to provide greater specificity as appropriate in a few parts this paragraph. 1st, where the author team says "severely" is it possible to indicate if effects have been measurably larger than some baseline--given that extreme events have always had severe consequences independent of climate change? 2nd, can a rough estimation of timeframe be provided (for example, in decades) where the author team says "over the recent years"? Finally, can the "remarkable" changes in rainfall extremes be characterized more specifically in terms of magnitude of change? (Katharine Mach, IPCC WGII TSU)	Changes have been made and appear in the revised version of the ES.
52	54545	27	2	34	2	38	The logic linking the bold statement in this paragraph with the two nonbold sentences is somewhat unclear, given that both of the nonbold sentences seem to describe changes in climate patterns rather than just climate variability or extreme events on their own. Reading the corresponding chapter text gives the impression that these changes have been attributed to climate variability rather than climate change, and if so, this should be clarified in the Executive Summary text. It might also be useful to present changes that can be attributed to climate change. In addition, several other points could be better clarified: (1) please specify the timeframe for the observed increase in warm and decrease in cold days/nights; (2) please specify what is meant by "severely affecting" and "recent years"; (3) Section 27.2.1.1 states that the recent rainfall extremes mentioned here have been related to natural climate variability rather than anthropogenic climate change, which is somewhat different from the impression given by the Executive Summary text. Please harmonize based on what is most accurate. (Michael Mastrandrea, IPCC WGII TSU)	Changes have been made and appear in the revised version of the ES.
53	39321	27	2	35	2	38	the paragraph needs editing for clarity. For example in line 35 "and respectively in nights" - don't understand what is meant. Line 38 perhaps better would be "to identify the causes of these changes". (Maria Assuncao Silva Dias, University of Sao Paulo)	Changes have been made and appear in the revised version of the ES.
54	35360	27	2	36	2	36	The reader will much benefit from a clear description of what region SESA represents. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Changes have been made and appear in the revised version of the ES.
55	53638	27	2	36	2	36	Please define SESA. (Kristie L. Ebi, IPCC WGII TSU)	Changes have been made and appear in the revised version of the ES.
56	47774	27	2	40	2	46	This point on deforestation is not really about climate change. It is very strange to have it listed as the second point in the summary, so prominent, when it doesn't deal with climate change and only might possibly be related to climate change impacts. I recommend removing it altogether from this summary. (Mark Carey, University of Oregon)	The text has been revised to emphasize the point that deforestation has a high potential to increase the negative impacts from climate change in the region. This paragraph is second in the executive summary following the order of the text in body of the chapter and it is not indicative of the relative importance of the points presented in the summary.
57	51655	27	2	40	2	46	For this paragraph, there are several clarifications the author team might consider. 1st, where the author team states that deforestation rates "remain high," is it possible to indicate an approximate magnitude for these rates? 2nd, rates of land degradation could additionally be specified. Finally, in the last sentence, could the author team provide more specific indication of the current rates of deforestation in the Amazon and the high rate still present elsewhere? (Katharine Mach, IPCC WGII TSU)	1. specific numbers for deforestation rates were added. 2. Percentage of countries' territories impacted by land degradation were added. 3. Deforestation rate for other biomes added.
58	39322	27	2	44	2	44	"Even though the rate of deforestation in the Amazon" (Maria Assuncao Silva Dias, University of Sao Paulo)	The text has been changed as suggested.
59	47776	27	2	48	2	54	This point has nothing to do with climate. Of course, socioeconomics affects vulnerability, etc. But the text doesn't explain this, so it seems an irrelevant point here. The whole first page of the executive summary makes almost no points about climate change, which is very problematic. Either link all those points directly to climate with specific evidence and explanations, or delete those points. (Mark Carey, University of Oregon)	The text has been revised to emphasize the poverty levels in the region and their connection with the high vulnerability to climate change impacts
60	51656	27	2	49	2	49	The author team may consider providing a more specific indication of the magnitude of this "high and persistent poverty level in most countries of the region." (Katharine Mach, IPCC WGII TSU)	We added percentage poverty levels for Central and South America.
61	39323	27	3	2	3	3	this numbers are inconsistent with the text in page 5 lines 29-30 (Maria Assuncao Silva Dias, University of Sao Paulo)	Changes have been made and appear in the revised version of the ES.
62	46457	27	3	6	3	10	Please verify the following information: "Analyses from global and regional models in SA show common patterns of projected climate in some sectors of the continent, with an increase of precipitation in SESA, Northwest of Peru and Ecuador and western Amazonia, while decreases are projected for northern SA, Eastern Amazonia, central eastern Brazil, Northeast Brazil, the Altiplano and southern Chile", since the precipitation in some regions of southern Argentina are also expected to decrease (see IPCC WGI AR4, Figure TS30, page76). (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Changes have been made and appear in the revised version of the ES.
63	54547	27	3	13	3	15	I believe this means 17-20% of global greenhouse gas emissions, but it is not clear whether this is the contribution of ecosystem conversion in Central and South America only, or the global total for ecosystem conversion. Please specify this here and in the corresponding chapter text (page 19). (Michael Mastrandrea, IPCC WGII TSU)	Text says "on the planet".
64	47778	27	3	13	3	21	No direct linkage to climate explained here. See my comments above; remove the point or link to climate. (Mark Carey, University of Oregon)	Probably the reviewer did not notice, but the text clearly states "Conversion of natural ecosystems ... is also the second largest driver of man-induced climate change on the planet." It also says that "Climate change will further enhance species decline in the region". Details are given in the body of the text.
65	51657	27	3	13	3	21	Potential clarifications for this paragraph would include the following: 1st, for the finding in bold text, is it possible to indicate more specifically the rate of conversion of natural ecosystems--or on line 17, the rate of plant species decline? Additionally for the bold finding, is the percentage of total greenhouse gas emissions given for conversion of natural ecosystems worldwide--or is this contribution due to conversion of natural ecosystems in Central and South America alone? Then, for the described "highest percentage of rapidly declining amphibian species" can the percentage be indicated more specifically? Similarly, can the degree to which species are threatened in Brazil be specified? (Katharine Mach, IPCC WGII TSU)	Most of these figures are given in the respective section. I felt it would preferable not to include it here due to obvious space limitations.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
66	47777	27	3	15	3	15	Scholarly literature has strongly criticized the use of the term wilderness because of its cultural relativity and its problematic usage, to suggest nobody is there when in fact indigenous peoples have and still do reside in supposed "wilderness" areas. Remove the word is best to avoid any problematic mis-interpretations. (Mark Carey, University of Oregon)	Wilderness is defined as "a natural environment on Earth that has not been significantly modified by human activity". In the Amazon, indigenous activity for centuries did not significantly alter landscape. Therefore, the use of the term here is appropriate. A quick search in Google Academic reveals 730,000 cites to the term, which means it is quite well understood by a large audience despite academic debate.
67	46128	27	3	15	3	18	I don't see the link between the Amazon and Central America (Luis E. Garcia, World Bank)	The Amazon is given as an example of large extensions of forest cover in CA and SA
68	46129	27	3	23	3	36	Can trends be detected with short records? (Luis E. Garcia, World Bank)	Specific analyses are presented in the relevant sections.
69	44228	27	3	24	3	25	Chross check with respective chapters in WG1 SOD (Georg Kaser, University of Innsbruck)	WG1 SOD chapters have been revised.
70	51658	27	3	24	3	29	Potential further specifications for this paragraph could include the following: Is it possible to provide further indication of rates of glacier retreat or cryosphere change on lines 24-25? Also, for the sentence on lines 27-29, it would be helpful to specify why these vulnerable regions are expected to increase in vulnerability--due to water availability? (Katharine Mach, IPCC WGII TSU)	Text modified. Rates are different for every glacier.
71	54549	27	3	27	3	29	It would be useful to specify further the ways in which climate change would increase the vulnerability of semi-arid zones, as is discussed in section 27.3.1.2. (Michael Mastrandrea, IPCC WGII TSU)	Text modified.
72	44229	27	3	29	3	31	Chross check with respective chapters in WG1 SOD (Georg Kaser, University of Innsbruck)	WG1 SOD chapters have been revised.
73	44230	27	3	31	3	32	Chross check with WG2 Ch3 (Georg Kaser, University of Innsbruck)	WG1 SOD chapters have been revised.
74	46924	27	3	31	3	32	While this is certainly the case given expected increased variability in streamflow across the region, the Executive Summary (and by extension the case study on hydropower) should mention the planned expansion in hydropower generating capacity already priced into economic growth models, especially in countries such as Brazil, Peru, Ecuador, and Chile, as a result of counter-cyclical state-financed hydropower infrastructure investments, at least through 2030. To see a summary of planned dams in Amazonia, visit: http://www.dams-info.org . (Katy Yan, International Rivers)	It is unclear why this has to be mentioned here. The point there is to highlight the role of hydropower as an important renewable source of electricity generation. Details in relevant sections.
75	54550	27	3	34	3	35	It would be useful to clarify what these legal and constitutional reforms aim to achieve. (Michael Mastrandrea, IPCC WGII TSU)	Text modified to include this information.
76	47779	27	3	38	4	4	Neither of these two topics are tied to climate change directly. Link them or remove them. (Mark Carey, University of Oregon)	Yes, we have done as the reviewer suggested.
77	51659	27	3	40	3	40	As appropriate, the author team should consider indicating if this potential outcome is associated with particular climate/socioeconomic scenarios or other assumptions. (Katharine Mach, IPCC WGII TSU)	Yes, we have done as the reviewer suggested.
78	54551	27	3	41	3	43	The traceable account for this statement (specifically the short-term timeframe mentioned) is not clear in the corresponding chapter text. Please clarify this linkage. In addition, it would be useful in the Executive Summary text to further specify how productivity could be affected. (Michael Mastrandrea, IPCC WGII TSU)	Yes, we have done as the reviewer suggested.
79	54552	27	3	47	3	49	Please explain further how RE would act as an adaptation rather than mitigation action, as this is not clear. (Michael Mastrandrea, IPCC WGII TSU)	The same as comment number 20.
80	51660	27	3	47	3	54	Possible further specifications for this paragraph may include the following: On line 48, is renewable energy also a means of mitigation in addition to adaptation? On line 49, can the importance of hydropower and biofuels be indicated more specifically to providing percentages for the amount of renewable energy they provide in the region? On line 51, if "likely" is being used per the uncertainties guidance for authors, it should be italicized; casual usage should be avoided. The sentence on lines 52-53 would benefit from clarification. Finally, for the sentence on line 54, should mitigation be mentioned as well as adaptation, and is it possible to indicate why productivity would increase? (Katharine Mach, IPCC WGII TSU)	Reviewer is correct. We will add better explanation of the adaptation versus mitigation in the chapter.
81	54553	27	3	47	4	4	Please provide line of sight to the relevant sections of 27.3.6. (Michael Mastrandrea, IPCC WGII TSU)	This will be done for the next version.
82	51661	27	4	6	4	15	For the statement in bold text, the current formulation potentially suggests that all of these effects have been rigorously attributed to climate change already. If this is not the case, a more qualified wording could be considered. For the final sentence of the paragraph, the author team might consider a more specific characterization that avoids potential interpretation of being prescriptive. (Katharine Mach, IPCC WGII TSU)	The text has been modified as suggested by the reviewer
83	47781	27	4	8	4	10	Is climate change causing these health/disease problems, or just weather events such as heat waves, cold spells, droughts, etc? This looks like weather-related events causing health problems, which has always been the case. But are you saying that climate change is related? If so, evidence and a direct link is necessary; otherwise, this is inadequate evidence. (Mark Carey, University of Oregon)	Ok. The text of the ES has been revised accordingly.
84	54554	27	4	14	4	15	This statement does not communicate much information (and could be read as policy prescriptive). Describing adaptation actions or potential options would be an alternative to consider. (Michael Mastrandrea, IPCC WGII TSU)	The text has been modified as suggested by the reviewer
85	51662	27	4	17	4	19	For this statement, the author team could consider indicating as appropriate the importance of both climate-related and non-climate-related drivers for these changes. (Katharine Mach, IPCC WGII TSU)	The text following the headline already does so.
86	47782	27	4	17	4	27	There is no evidence provided that climate change is affecting coastal or marine regions. What is the exact role of climate here? If none, then delete this point (Mark Carey, University of Oregon)	Same as above, and the respective section in the text describes several effects that are attributed to climate change.
87	54555	27	4	23	4	24	Over what time period have these changes been observed? (Michael Mastrandrea, IPCC WGII TSU)	We have done as suggested by the reviewer

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
88	40678	27	4	24	0	0	The timescale used for the scenarios is not clear, neither are the limitations of the tools used. The fact that population inhabits 200 km from the sea does not mean that they are vulnerable to SLR or storms. For example Caracas is within this distance but there is a very high mountain separating the city from the sea. Caracas is not vulnerable at all a SLR or waves. The same happens with other cities in the region. Distance alone is not enough, other variables need to be taken into consideration, otherwise it can lead to misinterpretations. (Carmen Lacambra Segura, Grupo La era)	We have done as suggested by the reviewer
89	53639	27	4	34	0	0	You might consider a map of the region showing the various sub-regions. (Kristie L. Ebi, IPCC WGII TSU)	We have done as suggested by the reviewer
90	35358	27	4	39	4	40	'...while adaptive...alleviation.' Do you not think that the way this piece is written is a bit twisted? What do you think about this: '...while poverty alleviation is improving adaptive capacity' (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	We agree with the reviewer and we apologize for not making the change in this version due to a mistake. We will make sure we will rephrase the sentence in the final version.
91	51663	27	4	42	4	53	For these paragraphs, the author team might consider providing further background citations. (Katharine Mach, IPCC WGII TSU)	We have done as suggested by the reviewer.
92	40657	27	4	44	4	46	Disasters reported could be a consequence of climate change but there are other many variables (as this chapter discuss) that could be influencing on the number of reports of disasters, for example urbanization in risks areas, degradation of natural systems, ENSO, better capacity to report disasters) (Carmen Lacambra Segura, Grupo La era)	We have done as suggested by the reviewer.
93	40658	27	4	46	4	47	Other two competing uses on top of those listed are mining and Conservation of natural ecosystems. Mining is growing fast in many countries, mining licenses are being giving near protected areas, in indigenous territories etc. Conservation of natural resources competes with all the activities listed, and what has not been considered is all the ecosystem services that are being lost once natura ecosystems are degraded or replaced with other systems. (Carmen Lacambra Segura, Grupo La era)	We have done as suggested by the reviewer.
94	51664	27	4	51	4	51	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	We have done as suggested by the reviewer.
95	35359	27	4	51	4	52	What does 'increasing emission potentials' mean? Does it mean increasing the capacity for growth of emissions because of increasing land use and industrialisation (lines 49 to 51)? Please make the idea more explicit. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Yes, it does. We have changed the text a suggested by the reviewer
96	40659	27	4	52	4	53	Ideally science-based decision making would happen. If for example urban planning was made based on scientific facts most of the cities would not be reporting so many climatic disasters. Examples from Cusco, Bogota, Cartagena, Santos, Caracas, etc. This statement in this chapter is very important, perhaps it can be moved to the executive summary. Several development agencies are funding projects for cities adaptation, there is a clear movement/need for cities adaptation (Carmen Lacambra Segura, Grupo La era)	The text has been modified as suggested by the reviewer
97	53640	27	4	53	4	53	Do you mean support (not control) innovation? (Kristie L. Ebi, IPCC WGII TSU)	Yes, this is the case.
98	51665	27	5	1	5	2	As appropriate, it would be helpful to provide for their citations as background for the statement. (Katharine Mach, IPCC WGII TSU)	Yes, we have done as the reviewer suggested.
99	51666	27	5	11	0	0	Section 27.1.2.1. For statements in this section, the author team should also communicate any calibrated uncertainty language that was assigned in the 4th assessment report, italicizing the terms here. For example, if "likely" and "very likely" are reproduced on lines 31 and 32 from the 4th assessment report, as calibrated uncertainty language they should be italicized. (Katharine Mach, IPCC WGII TSU)	Yes, we have done as the reviewer suggested.
100	40660	27	5	13	5	54	There are three topics that are not mentioned: sea level rise, uncertainty and gaps in data and information (Carmen Lacambra Segura, Grupo La era)	It was added
101	51667	27	5	17	5	20	For these statements as possible, it would be helpful to provide a broad timeframe over which the observations have occurred. (Katharine Mach, IPCC WGII TSU)	Yes, we have done as the reviewer suggested.
102	44231	27	5	21	5	22	Since this part was very weak and questionable in the Central and South America Chapter of WG2 AR4, one better refers to AR4 WG1 Ch4 findings about this region (Georg Kaser, University of Innsbruck)	This is the summary of WG2 AR4-Chapter 13.
103	35053	27	5	23	5	25	The finding about deforestation have been continuously increasing seems do not match with other finding in this chapter where deforestation rates have showed a reducing trends in the last decade. (Lino Naranjo , MeteoGalicia)	Yes, this has changed
104	46458	27	5	39	5	39	The word "increas" must be corrected by: "increase". (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Yes, we have done as the reviewer suggested.
105	42180	27	6	0	7	0	Section: 27.2.1.1: this section contains a lot of useful information but needs to be structured better. It presents very localised observations (e.g. Mantaro) valley alongside large regional trends. It may be useful to clarify whether observations are anecdotal or based on limited observations, or whether they are widespread and statistically significant trends (Wouter Buytaert, Imperial College London)	Statements are based on studies by SENAMHI for various river basins in Peru, based on long terms rainfall and tempetature observations and models projection.
106	42181	27	6	0	9	0	section 27.2.1: I am surprised to find very little information about ENSO and potential changes, as this is a main driver of climate variability especially over the tropical Andes (Wouter Buytaert, Imperial College London)	Changes in ENSO in future climate change scenarios, at least as shown in the AR4 are still uncertain. We are looking into the AR5 to see if this situation has changed.
107	51668	27	6	1	0	0	Section 27.1.2.2. For statements in this section, it would be preferable to cite the specific relevant chapters of the special report on extremes. Additionally, all calibrated uncertainty language used (medium confidence, low confidence, likely, etc.) should be italicized. (Katharine Mach, IPCC WGII TSU)	Most of the information relevant to the climate setrressors comes from Chapter 3 of SREX.
108	40661	27	6	3	6	35	Is there any reference to the variability due to local topography, forest, geodynamics and other local variables? (Carmen Lacambra Segura, Grupo La era)	Not much, we reviewed Chapter 3 of the SREX and did not find much information on what was mentioned by the reviewer.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
109	46459	27	6	23	6	23	The word "weakear" must be corrected by: "weaker". (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Correction has been made.
110	35057	27	6	38	8	16	In this section there are a lot of informations about climate trends and variability. However it is only an enumeration of facts, some contradictory, and not a real discussion. I think the section needs a final discussion that summarized the main findings trying to show an unified picture. (Lino Naranjo , MeteoGalicia)	Since we have a limit on number of pages, we have to be as succinct as possible. We have indicated the facts and refer to several updated studies that describes those trends.
111	46130	27	6	44	6	44	Decadal may be weather and not climate (Luis E. Garcia, World Bank)	We talk about changes in the scales of 20-30 years as decadal, and not for periods of 10 days, as used in various met services.
112	40663	27	6	44	8	16	The interaction of El Nino and La Nina with climate change, climate variability and uncertainty. Perhaps only mentioning would provide the reader with an idea of the importance of understanding well these processes and the need to invest more in understanding them and how might CC affect them. (Carmen Lacambra Segura, Grupo La era)	We have referred to Chapters 8 and 14 from the IPCC WG1 where they indicate some results of the CMIP5 models, as compared to CMIP3 models, and some of the expected changes in rainfall in CA and SA.
113	40662	27	6	51	6	54	The ENSO plays such an important role on the region's precipitation. It would be very interesting to highlight a bit all the different variables that could be playing a role on the regional climate and how climate change will affect that. The CIIFEN based in Ecuador (research centre for the ENSO phenomena) could contribute with this information. http://www.ciifen-int.org/ (Carmen Lacambra Segura, Grupo La era)	We have a contributing authors from CIIFEN who has provided relevant information for our chapter. We have referred to Chapters 8 and 14 from the IPCC WG1 where they indicate some results of the CMIP5 models, as compared to CMIP3 models, and some of the expected changes in rainfall in CA and SA.
114	42902	27	7	6	0	0	Here is talking about "...the Mid Summer Drought MSD, also known as canicula or veranillo"; however, the term drought can not be applied to that, because canicula or veranillo is a phase of the annual cycle, but ti is not an anomaly. It is a pattern of the regional climate. In this case the concept of "the Mid Summer Dry Season" is more appropriate (José Daniel Pabón-Caicedo, Universidad Nacional de Colombia)	We refer to what is published on the international literature, MSD, with the word Drought as part of it. We can refer that as a dry spell, also but to be cosistent we refer to the MSD name already referred in the international literature.
115	46460	27	7	6	7	6	The Spanish word "canícula" is with accent (see for example: http://www.wordreference.com/definicion/canicula). So, please change "canicula" by "canícula". (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Correction has been made.
116	37619	27	7	8	7	10	This needs a reference (Hugo Hidalgo, Universidad de Costa Rica)	We have this reference, that event though is from the times of the AR4 is still relevant for AR5 (Englehart and Douglas 2006).
117	46461	27	7	8	7	10	A reference must be included at the end of the sentence: "In CA and the North American Monsoon System (NAMS), rainfall has been starting increasingly later and has become more irregular in space and time, and the intensity of rainfall has been increasing during the onset season." (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	We have this reference, that event though is from the times of the AR4 is still relevant for AR5 (Englehart and Douglas 2006).
118	35055	27	7	22	7	30	It Should be more specific about the changes in the frequency of cold nights in austral summer, there is not clear the direction of these changes. the References to the Southern Annular Mode SAM seems unnecessary because not provide significant information to this paragraph (Lino Naranjo , MeteoGalicia)	The change in cold nights is more on the decrease side.
119	35361	27	7	23	7	23	'...changes in the frequency of cold nights in austral summer...' Frequency up or down? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Frequency down
120	53641	27	7	32	7	34	References are needed. (Kristie L. Ebi, IPCC WGII TSU)	Sorry, there was a mistake, we have not considered model experiments on lightning activity and global warming in the region. We have re arranged the text, so we can explain the positive trends in heavy precipitation in the state of Sao Paulo durig the last 50 years or so with an increase in lightning and thunderstim activity, s reported by Pinto and Pinto (2008-JGR).
121	37620	27	7	33	7	34	I'm surprised about the reference to lighting simulated by climate models, is this an indirect measurement? Needs reference (Hugo Hidalgo, Universidad de Costa Rica)	Sorry, there was a mistake, we have not considered model experiments on lightning activity and global warming in the region. We have re arranged the text, so we can explain the positive trends in heavy precipitation in the state of Sao Paulo the last 50 years or so with an increase in lightning and thunderstim activity, s reported by Pinto and Pinto (2008-JGR).
122	35056	27	7	36	7	37	It looks a contradiction the positive temperature trends with an increasing in the number of frost days. This paragraph probably needs be more developed. (Lino Naranjo , MeteoGalicia)	not so much, in he southern Andes of Peru in fact there is a positive tendency in cold nights and frost, but in general the tendency is for reduction of frost days
123	37621	27	7	36	7	37	Does this mean more frequent extreme events? (Hugo Hidalgo, Universidad de Costa Rica)	Yes, that is correct
124	40235	27	7	51	7	51	Please change Espinoza et al. (2009; 2009) by Espinoza et al (2009a). Espinoza Villar J.C., J.Ronchail, J.L. Guyot, N. Filizola, J.J. Ordenez, L. Noriega, R. Pombosa, H. Romero 2009a. Spatio-temporal rainfall variability in the Amazon basin countries (Brazil, Peru, Bolivia, Colombia and Ecuador). International Journal of Climatology. 29, 1574-1594 Same thing in the table page 77 (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	Change has been made.
125	40239	27	7	51	7	52	Please add ",especially in the Peruvian western Amazon (Lavado et al. 2012)" betwenn (...Espinoza et al. (2009; 2009) found that mean rainfall in the Amazon basin for 1964–2003 has decreased, with stronger amplitude after 1982) and (consistent with....) Lavado C. W.S., Ronchail, J., Labat, D., Espinoza, J.C. and Guyot, J.L., 2012. Basin-scale analysis of rainfall and runoff in Peru (1969–2004): Pacific, Titicaca and Amazonas watersheds. Hydrological Sciences Journal, 57 (4), 1–18 (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	Text has been added.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
126	42182	27	8	0	9	0	section 27.2.2: There is not much information about the evaluation of GCM performance over the region. I am not sure whether this will be added once more information about the CMIP5 ensemble is available. Anyway I would recommend to add such information (here or in another section) because issues with model performance (especially over the Andes) may be relevant for the interpretation of GCM projections (Wouter Buytaert, Imperial College London)	We have added some information on CMIP3 models and new results from CMIP5 that are just appearing now. This new information is being added and will be added on the text and also on the Table 27.2 as soon as they are published or accepted. Unfortunately, very few studies on CMIP3 models have been published for Central America, few of them for the NAMS region alone. We hope this will improve with the CMIP5 models.
127	37622	27	8	5	8	6	How can you attribute one particular event to natural variability and not climate change (deforestation or global warming)? (Hugo Hidalgo, Universidad de Costa Rica)	short term events, such as those droughts and floods on interannual time scales are more indicators of natural climate variability, and various studies indicate that the effects of land use changes in general do not appear on such time scales. If there is any impact of deforestation on rainfall trends in Amazonia, this has not been detected yet since there is not yet any unidirectional trend of rainfall in Amazonia.
128	40234	27	8	6	8	6	Please mention Espinoza et al. (submitted in 2012) who worked about the 2012 flooding in western Amazon and also Filizola et al. (submitted in 2012). Espinoza, J.C., Ronchail, J., Frappart, F., Lavado, W., Santini, W., Guyot J.L. The 2012 flood in the Amazonas River and tributaries (Western Amazon basin). Submitted to Journal of Hydrometeorology. Filizola, N. Latubresse, E., Fraizy, P., Souza, R. Guimaraes, W. Guyot, J. L., 2012: Was the 2009 flood the most hazardous or the largest ever recorded in the Amazon. Submitted to Geomorphology. (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	References have been included.
129	40237	27	8	9	8	9	Getirana et al (2011), Guimberteau et al. (2012), Paiva et al (2011 and 2012) assess the impact of rainfall and flood plains extension datasets and of a full hydrodynamics models on the modelisation of discharge in the sub-basins of the Amazon basin. Getirana, A.C.V., Espinoza, J.C.V., Ronchail, J., Rotunno Filho, O.C. 2011. Assessment of different precipitation datasets and their impacts on the water balance of the Negro River basin, Journal of Hydrology, doi: 10.1016/j.jhydrol.2011.04.037. Guimberteau, M., Drapeau, G., Ronchail, J., Sultan, B., Polcher, J., Martinez, J.-M., Prigent, C., Guyot, J.-L., Cochonneau, G., Espinoza, J. C., Filizola, N., Fraizy, P., Lavado, W., De Oliveira, E., Pombosa, R., Noriega, L., and Vauchel, P. 2012: Discharge simulation in the sub-basins of the Amazon using ORCHIDEE forced by new datasets, Hydrol. Earth Syst. Sci., 16, 911-935, doi:10.5194/hess-16-911-2012. Paiva, R.C.D. ; Buarque, D.C. ; Collischonn, W. ; Bonnet, M.P. ; Frappart, F. ; Calmant, S. ; Mendes, C.A.B. Large-scale hydrologic and hydrodynamic modelling of the Amazon River basin. Water Resources Research. Submitted. Paiva, R.C.D., Collischonn, W., Buarque, D.C. 2011. Validation of a full hydrodynamic model for large scale hydrologic modelling in the Amazon. Hydrological Processes. Accepted Article, doi : 10.1002/hyp.8425 . (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	We have added few lines on this and also the references to the list.
130	51669	27	8	19	0	0	Section 27.2.1.2. For this section, the author team may wish to consider presenting maps illustrating projections that have been made. (Katharine Mach, IPCC WGII TSU)	In the FOD we have Figure 1, that is prepared based on observed and projected changes in climate land use, etc. Even though is qualitative, it provides information that can summarize well the literature and tables shown in Section 27.2.1.
131	53642	27	8	19	0	0	Please ensure consistency with WGI. (Kristie L. Ebi, IPCC WGII TSU)	Yes, we have considered the relevant Chapters from WG1 AR5 (Chapter 2 -observations, and 10 and 14-projections).
132	40664	27	8	28	8	32	Sea Level rise is an important factor that does not seem to be considered in this chapter. Predictions have been made and despite overall there is a need to improve data and information, in some areas there are good measurements. (Carmen Lacambra Segura, Grupo La era)	Sea level rise is not a climatic stressor, that is why it is not included on this section. Este tema e ve en algunas secciones de impactos en el capitulo, como por ejemplo ecosistemas costeros y megaciudades costeras
133	46131	27	8	34	8	35	Seems like a pluralistic opinion but Giorgi is author in all three references. (Luis E. Garcia, World Bank)	Yes, we are aware of that, and we believe that this does constitute a major problem.
134	53643	27	8	36	8	36	Please define NAMS. (Kristie L. Ebi, IPCC WGII TSU)	NAMS=North American Monsoon System, name already defined in the ES
135	46462	27	8	36	8	38	Please, verify the reference (Lu et al., 2007) used for the following sentence: "Climate change scenarios for the 21st century from CMIP3 global models show a weakening of the NAMS due to a weakening and poleward expansion of the Hadley cell under the A1B emission scenario caused by a warming of about 0.6° lat/°K lat by 2100 (Lu et al., 2007)." Central and South America have a large latitudinal extension, from more than 30°N to about 55°S, so a "0.6° lat/°K lat", if applied to all the region, would give a so large warming which is not described by the model calculations (see IPCC WGI, AR4 and AR5). This result is true for a very limited latitudinal range. Please, specify this range. (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Sorry, we have eliminated this text (Lu et al 2007) since it discussed changes of the Hadley Cell at global scale and not for the NAMS
136	39324	27	8	38	8	38	is there an error in the unit of the warming? (Maria Assuncao Silva Dias, University of Sao Paulo)	Sorry, we have eliminated this text (Lu et al 2007) since it discussed changes of the Hadley Cell at global scale and not for the NAMS
137	53644	27	8	39	8	39	Please define MSD. (Kristie L. Ebi, IPCC WGII TSU)	This is the Mid Summer Drought, as it has been defined on the text and known in the international literature.
138	51670	27	8	44	8	44	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Ok, correction has been made.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
139	37623	27	8	46	8	46	Do you mean HIGH uncertainty? (not consistent the previous sentence of the text) (Hugo Hidalgo, Universidad de Costa Rica)	Sorry, yes, it is high uncertainty.
140	40585	27	8	48	0	0	"MRI-JAM" should be "MRI-JMA." (Toshiyuki Nakaegawa, Meteorological Research Institute)	Correction has been made.
141	51671	27	9	3	9	6	For this statement, it may be helpful to clarify the timeframe and scenarios for which these changes are projected—2100 across climate/socio-economic scenarios considered? (Katharine Mach, IPCC WGII TSU)	This experiments are mostly upto to 2100 for the high emission scenarios A2.
142	46463	27	9	16	9	16	Please, verify why this reference: "(1987 Soares, W.R. 2009;)" is indicated in a different form with respect to the others. (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Reference is Soares and Marengo (2009). This related to formatting issues only that has been resolved in the SOD.
143	53645	27	9	41	0	0	Please ensure consistency with WGI and relevant chapters in WGII. (Kristie L. Ebi, IPCC WGII TSU)	We are revising relevant chapters in WGI and WGII to ensure consistency.
144	38351	27	9	41	14	2	section 27.2.2: while the focus here is on land use changes mainly due to agricultural land conversion and deforestation for agricultural land and bioenergy production, which is probably a main factor in Central Amazonia, other regions in the realm are facing pressures from other important stressors that are not mentioned. 1. mining: particularly problematic in northern Amazonia, where medium and large scale mining for bauxite, gold and diamonds cause large scale habitat degradation and loss. Under the influence of the current global economic crisis, these efforts and impacts will likely increase, as the gold price rises and the demand for these natural resources grows. 2. Hydrodamprojects such as the controversial Belo Monte project at Xingu and several others, e.g. in the traditionally poorer North-East of Brazil (e.g. Itaparica, Pernambuco) are likely to yield synergistic effects with climate change processes as they result in large scale alterations of land cover and hydroregimes. Even though hydropower is addressed in a separate section, it should be mentioned here, otherwise, a separate section could be devoted to mining impacts in relation to climate change effects. (Raffael Ernst, Senckenberg Natural History Collections Dresden)	We agree with the reviewer and we apologize for not fully covering this topic in this version. We are collecting references to so appropriately in the final version.
145	47978	27	9	43	0	0	Forest fires In the Bolivarian Republic of Venezuela, forest fires are recurring cyclical phenomena during the drought of November to April. Moreover, they have persisted for a long time because of the rural and indigenous populations, as well as the small and medium producers, that have made use of fire in their agricultural practices in order to reduce costs in soil cleanup. Other causes of forest fires include hunting, urban sprawl, tourism activities, malicious acts and, in very few cases, natural phenomena. In Venezuela, the fire season coincides with the dry period every year. February, March and April are the most critical drought months due to the extreme lack of humidity, as well as high temperatures and high levels of dryness in combustible materials, which increases the risk of fire spreading. In this country, "savanna" fires are much more common in the plains or in hilly and grazing areas. They usually reach areas with moriche palms and gallery forests, put great resistance to firefighting and cause serious environmental damages. In general, this kind of fires has been more frequent in the most populated areas where human activities bear great responsibility (particularly, agricultural activities). During the last years, the Bolivarian Government has developed a strategy of expanding agriculture in order to meet the increasing demand of agricultural production and to reduce land degradation occurred during the 1990s. According to the seventh national agricultural census (May 2007 to April 2008), the central region (in Aragua, Carabobo, Miranda and Vargas State, and in Capital District) and the Llanos region (in Guárico, Cojedes, Apure, Barinas, Portuguesa, parte de Anzoátegui and Monagas State) are both highly vulnerable to forest fires and comprise a total of 17,022,935 hectares of arable land, 1,321,713 of them are suitable for short-cycle crops, like corn, sorghum and sunflower. By 2009, according to the figures presented by the National Institute of Rural Development (INDER), more than 350,000 hectares of essential areas for national production were recovered by the National Institute of Land (INTI), i.e. 53,000 hectares of type I and II soil in the valleys of Aragua and Carabobo which were at risk of being urbanized, and are currently producing corn, beans and other crops. It is important to highlight that, in addition to these 350,000 hectares, the National Government has recovered 2.5 millions more during the last years, that is, 80% of production. That year, a little more than 3,000 hectares of type II and III soil in important lands in Valle	This comment makes no specific correction to the section 27.2.2.1. The points raised are interesting but beyond the scope of this report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
145.2	47978	27	9	43	0	0	del Río Turbio were recovered and submitted to a process of serious environmental degradation. These lands are currently producing corn, cowpea seeds and beans. During the last years, the irrigation system has been consolidated in order to establish Primary Production Units, within the Agrarian Corporation of Venezuela (CVA), in highly productive agricultural lands, with the aim of guaranteeing the suitability of soils for the production of crops and the benefit of all Venezuelans. Furthermore, about 1,500 idle lands have been recovered, for which agricultural production has increased between 21% and 24%. During 2011, according to the figures presented by the Ministry of Agriculture and Land, 13 out of 32 areas showed an increase and 9 showed a decrease due to the heavy rains that battered this country during that year, particularly during two critical moments: the planting and harvest seasons. As for cereals, these figures show that rice production increase 17%, that is, 845 thousand tons; and sorghum production increase 4%, that is, more than 491 thousand tons. On the contrary, yellow corn production decrease 17%, that is, 863 thousand tons; and white corn production decrease 14%, that is, 1 million 253 thousand tons. The Bolivarian Government of Venezuela has been implementing measures aiming at conserving soil and managing water resources, which allows reducing the threat of fire due to anthropogenic causes and, at the proper time, extinguishing fires of natural causes, through the action of relevant bodies such as firefighters and civil protection personnel at municipal and state levels. The National Institute of Meteorology and Hydrology (INAMEH), under the Ministry of People's Power for the Environment (MINAMB), elaborates during the dry season a 10 hours map for monitoring wildfire threats, based on climate models of temperature and relative humidity range. This data is available to Venezuelans on http://www.inameh.gob.ve/ in order to take corrective and preventive actions, in support of the above relevant bodies. Also, INAMEH seeks to maintain the degree of suitability of soils, by using them rationally and improving soil and drainage structures, in order to increase harvested areas, as well as crop production and yield. This way, food security shall be ensured, and emissions of greenhouse gases, such as carbon dioxide, methane and nitrous oxide, into the atmosphere shall be reduced. (Sergio Castellari, Centro Euro-Mediterraneo sui Cambiamenti Climatici)	
146	40667	27	9	43	12	19	No links to mining or natural resources extraction (oil, gas) Colombia, Bolivia, Venezuela, Peru are all countries in which mining and oil and gas extraction is growing and land is being planned for those purposes. Particularly forest areas. What will be the consequence on the local climate, on the environment and overall on emissions? (Carmen Lacambra Segura, Grupo La era)	This has already been covered in point 144, above.
147	47976	27	10	8	0	9	To understand this statistic of deforestation rates, we have to take into account the source of the information, in this case the FAO report Global Forest Resources Assessment, 2010. In this regard, it is necessary to point out and rectify that in this document are noted positions regarding Central and South American region countries, and not global. If we display world rates of deforestation, according the abovementioned report, we can note that Venezuela, in the period 2000-2010, ranks 10th with a deforestation rate of 2880 km2/per year (0,6 %). On the other hand the same FAO report, 2010, when referring to world deforestation rates, states that: "...However, this affirmation must be handled carefully, as many countries still do not have compatible information, through time, on other wooded lands, thus it was frequently used an unique estimate as the best data available for the four year reference." This match for Venezuela, where the reported data have not had enough continuity and today's reality is that these rates are lower, by virtue of the new information available on the actual forest areas and the policies aimed to their conservation, promotion of plantations and reforestations for multiple purposes. (Sergio Castellari, Centro Euro-Mediterraneo sui Cambiamenti Climatici)	The text has been revised to incorporate the point made in this comment that comparison of deforestation data among countries is limited by the fact that many countries do not produce similar information for equivalent periods of time.
148	47977	27	10	15	0	16	The practice of controlled burning is traditional in the plains of Venezuela; this practice favors the addition of nutrients to the soil, increasing productivity of the native grasses. Nevertheless, the calculation of burned areas proportion varies according to the method used for estimation. In a fieldwork conducted by Opazo and Chuvieco, 2009, using remotely sensing technology, on the burned land areas in South America, states: "some factors that can explain the large heterogeneity shown in the burned areas are related with the type of affected ecosystem, the severity of fire, the time between burning and the capture of the image, humidity of the land or the time of the year". On the other hand, in the results of said work, states: "... The more cloudy areas are west Ecuador and Colombia, the plains of Venezuela, the Brazilian Amazon area and south Chile. In these areas, the detection of burned pixels is problematic, but a large part of these region burn less because its high rainfall". In view of the vast information lifted at regional level, it is suggested to analyze other bibliographic sources. Source consulted: Opazo, S. & Chuvieco, E. 2009. Cartografía de áreas quemadas en Sudamérica: detección de píxeles semilla. Revista de Teledicción. ISSN: 1988-8740. 2009. 32: 50-71. (Sergio Castellari, Centro Euro-Mediterraneo sui Cambiamenti Climatici)	We assessed the citation indicated in the comment which relates mainly with remote sensing methodologies to detect burned areas. We have not chosen to include this citation as it is not related directly with climate change or specific figures of land use change, the main topic of this section.
149	51672	27	10	23	10	24	It would be helpful to clarify how these percentages given should be interpreted. (Katharine Mach, IPCC WGII TSU)	The text has been revised to include actual areas in Km2 of forest cleared for the given years
150	35058	27	11	2	11	3	The statement that "Two activities have traditionally dominated the agricultural expansion: beef and soy production; but more recently, biomass for biofuel production has become as important" could be confusing in the context of the paragraph, because this is true only in SA and not for CA. (Lino Naranjo , MeteoGalicia)	The text has been revised to clarify that soy production is only important in South America. Beef and biomass for biofuel production have been important drivers of deforestation both in Central and South America.
151	40665	27	11	51	11	51	Several ecosystems are/form forests (dry forest, rain forest, cloud forests, mangrove forests....). It is not just one ecosystem. (Carmen Lacambra Segura, Grupo La era)	The text has been revised to make reference to various forest ecosystems.
152	40666	27	11	51	12	3	It is mentioned somewhere else in the chapter, but here might be important too, to mention the consequences of climate change on ecosystem services in the region. (Carmen Lacambra Segura, Grupo La era)	The text has been revised to add two mentions of reduction of ecosystem services from deforestation and land degradation.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
153	40668	27	12	24	14	2	In several countries the middle classes are growing, perhaps not to the level of Europe or to the US but Latin-American people's capacity to buy things and to expand their homes and demand for goods is growing and will continue to grow. The report mentions the poverty, the inequity, the demand from the Asian markets, but does not there is not much on the own growing markets that will also have great influence. There is plenty of information about this at http://www.oecd.org/ although the link with climate change (adaptation and mitigation) does not seem to be clearly made. (Carmen Lacambra Segura, Grupo La era)	The text was modified in two different paragraphs to state the growing economic power of middle class and its growing demand for goods.
154	48451	27	12	28	12	30	New recommended writing: "...highly urban region, where megacities are commonplace. Seventy-seven...Southern Cone (de Miguel and Sunkel, 2011)". Comment 1: Megacities affect all Latin America, not only the Southern Cone. Comment 2: Correction in reference. (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	The text has been revised as suggested and the reference has been corrected for the last name of the first author.
155	47259	27	12	95	0	0	Recommendations on needs of vulnerable groups, such as indigenous peoples are important in this chapter. They could be strengthened with further details on page 26, line 21 and onwards which highlight the important potential of indigenous knowledge and practices for adaptation. This is a good section and should be represented in the SPM (Juan Hoffmaister, Third World Network)	This section already mentions several needs related to climate change of vulnerable groups, including indigenous groups: access to water, sanitation, adequate housing. This statement is included in the executive summary for the chapter and will be recommended for inclusion in the SPM.
156	51673	27	13	1	13	2	To allow full understanding of these statements, it would be helpful to indicate how poverty and extreme poverty are being defined here (for example, extreme poverty as less than \$1 per day?). (Katharine Mach, IPCC WGII TSU)	Question sent to Carlos de Miguel as contributing author of this section.
157	48452	27	13	2	13	3	New recommended writing: "...points. Poverty rates fell from 44% to 33% of the total population, leaving 150 million people in this situation, while extreme... people) (ECLAC, 2010d)." Comment 1: Data was not clear. Comment 2: delete: ", in both cases from 2002 to 2008". (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	The text has been revised as suggested.
158	51674	27	13	6	13	6	It would be beneficial to clarify what these percentages represent. (Katharine Mach, IPCC WGII TSU)	The text was revised to clarify the percentages included as GDP growth rates.
159	48453	27	13	12	13	12	New recommended writing: "As mentioned earlier, the higher rate of exports..." (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	Text revised as suggested.
160	51675	27	13	33	13	36	This statement would be clearer if the author team indicated more specifically what the decimal values represent (what metric) and also what metric is relevant for the described "growth rates." (Katharine Mach, IPCC WGII TSU)	The text was revised to clarify that the decimal values refer to Human Development Index (HDI) values. The reference to growth rates was removed and substituted by reference to improvements in HDI as no estimates of growth rates are available.
161	35362	27	13	39	13	39	In the fragment '...are excluded from technological modernisation,' the verb means that there is a deliberate plan to reject technological modernisation. From whom? Landed oligarchies? In this case the readers will benefit from more explicitness on those apparently forces. Otherwise, I suggest refraining from using the verb 'exclude', and putting something more neutral, like for something like '...are not reached by technological modernisation'. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	The text was revised to include the language suggested.
162	35059	27	13	41	13	41	Children should be included into the most vulnerable groups in America. (Lino Naranjo, Meteogalicia)	The text was revised to include children in the list of vulnerable groups.
163	54546	27	13	44	13	44	Please provide citations to support this statement, given its elevation to the Executive Summary. (Michael Mastrandrea, IPCC WGII TSU)	There are three citations already provided in support of this statement.
164	51676	27	13	46	13	54	It would be preferable to provide background citations for these statements. (Katharine Mach, IPCC WGII TSU)	Some of the statements summarize what was said in previous paragraphs and the text now indicates that. The citation of UN 2010 adds the additional information included in the paragraph.
165	53646	27	13	46	13	54	References are needed. (Kristie L. Ebi, IPCC WGII TSU)	Some of the statements summarize what was said in previous paragraphs and the text now indicates that. The citation of UN 2010 adds the additional information included in the paragraph.
166	42185	27	14	0	18	0	section 27.3.1: one topic that is surely lacking here is a discussion of the impact of climate change on tropical alpine grassland regions (paramos, jalcas, puna) that provide water to tens of millions of people in and around the tropical Andes and are crucial water sources for major cities such as Quito and Bogotá. Additionally, the scientific literature on these ecosystems has expanded dramatically since the 4th assessment report. This is also a topic that can be addressed in the section on data and research gaps (27.7), because despite the recent advances it is still very much an understudied ecosystem (e.g., compared to glaciers) (Wouter Buytaert, Imperial College London)	The impacts on tropical alpine regions are treated in another section of the chapter. We will make sure that the proper cross-reference to this section in terms of water resources impacts is made.
167	42187	27	14	0	18	0	Section 27.3.1: One recent publication that is probably highly relevant to illustrate the potential impact of climate change and other stressors on water scarcity is: Buytaert W, De Bievre B, 2012. Water for cities: the impact of climate change and demographic growth in the tropical Andes. Water Resources Research, W08503, doi:10.1029/2011WR011755, 2012 (Wouter Buytaert, Imperial College London)	This paper is included in SOD.
168	51677	27	14	7	0	0	Section 27.3.1. The author team should consider and cross-reference chapter 3 as appropriate across subsections here. (Katharine Mach, IPCC WGII TSU)	Chapter 3 has been revised to look for appropriate inclusions here.
169	42903	27	14	9	0	0	What does mean the sentence "..., but poorly distributed water resources availability"? It could be restricted, differentiated, contrasted, or so but "poorly distributed"!!! (José Daniel Pabón-Cañedo, Universidad Nacional de Colombia)	Sentence has been modified.
170	46925	27	14	15	14	17	The text should consider hydropower a consumptive use of water, as reservoir evapotranspiration eliminates water that would otherwise be available as river flow. (Katy Yan, International Rivers)	Text has been modified.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
171	46132	27	14	24	14	53	Trends are mentioned here, but in page 15, lines 43 and 44 it says that it is hard to make conclusive statements about trends. (Luis E. Garcia, World Bank)	The general statement of Garcia and Mechoso has been deleted since it is not considering robustness in trend signal.
172	51678	27	14	32	14	44	For the trends described on line 33 and 40-44, the author team should consider providing indication of the relevant time frame for the observations. (Katharine Mach, IPCC WGII TSU)	Information has been provided.
173	46926	27	14	46	15	3	Yet, the text notes that there have been significant streamflow changes in Andean glacier-fed rivers, which feed upstream into the Amazon mainstem. The text should discuss the significance of such changing glacier-fed streamflow to the overall streamflow of the Amazon mainstem and its significant tributaries, including the Marañón, Ucayali, Huallaga, Napo/Putumayo, and Madera/Madeira, especially. Similarly, the text should discuss how ecosystem changes in the Cerrado are affecting streamflow variability in Amazon tributaries such as the Tapajós, Xingu, and Tocantins. (Katy Yan, International Rivers)	Interesting point however the glacier fed river contribution to Amazons is no assessed in the literature. It is expected that the signal is not consistent depending on the status of the glacier in terms of the melting process.
174	40236	27	14	51	14	51	Please, change Espinoza et al 2009 by Espinoza et al. 2009b. Espinoza J.C., Guyot J.L., Ronchail J., Cochonneau G., Filizola N., Fraizy P., Labat D., Noriega L., de Oliveira E., Ordoñez J.J., Vauchel P. 2009b. Contrasting regional runoff evolution in the Amazon basin (1974-2004). Journal of Hydrology, 375, 297-311. (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	Text has been modified.
175	40669	27	15	2	15	10	Contradiction between the 2 paragraphs. Firsts says that the Magdalena river, the most important basin showed no significant trend. The following paragraph says that most important basins in Colombia show decreasing trends. Also this reference is from 2009, if the discharges from 2010 and 2011 are considered (severe floods all over the country) most probably this trend changes. (Carmen Lacambra Segura, Grupo La era)	The reference to Poveda and Pineda has been deleted. That paper deals mostly with glacier trend and that information is correctly referenced in the chapter.
176	51679	27	15	6	15	8	For these statements, the author team should consider specifying the relevant time frames. (Katharine Mach, IPCC WGII TSU)	Text has been modified.
177	42184	27	15	6	15	10	Given the very limited area of colombian glaciers it is extremely unlikely that glacier melt will have had a significant impact on the flows of major rivers. Additionally, accelerated glacier melt should iniatlly result in an increase in river flow (Wouter Buytaert, Imperial College London)	The reference to Poveda and Pineda has been deleted. That paper deals mostly with glacier trend and that information is correctly referenced in the chapter.
178	43387	27	15	6	15	30	In general, I consider this an appropriate synthesis of cryosphere changes in the Andes. Projections of glacier changes are currently integrated in Table 27.4 but I suggest to also include a couple of sentences on that in the text (even though there are not many studies on that). Furthermore I recommend to reference the new review paper Rabatel et al. 2012, The Cryosphere Discussion, on tropical Andean glaciers. (Christian Huggel, University of Zurich)	The Rabatel study has been included.
179	47780	27	15	12	15	25	This is a very vague paragraph considering all the information coming out in recent years about runoff reduction and glacier retreat. See, for example: Baraer, Michel, Bryan G. Mark, Jeffrey McKenzie, Thomas Condom, Jeffrey Bury, Kyung In Huh, César Portocarrero, Jesús Gómez, and Sarah Rathay. 2012. "Glacier Recession and Water Resources in Peru's Cordillera Blanca." Journal of Glaciology no. 58 (207):134-150. Mark, Bryan G., Jeffrey Bury, Jeffrey McKenzie, Adam French, and Michel Baraer. 2010. "Climate Change and Tropical Andean Glacier Recession: Evaluating Hydrologic Changes and Livelihood Vulnerability in the Cordillera Blanca, Peru." Annals of the Association of American Geographers:DOI: 10.1080/00045608.2010.497369. Mark, Bryan G., Jeffrey M. McKenzie, and Jesús Gómez. 2005. "Hydrochemical Evaluation of Changing Glacier Meltwater Contribution to Stream Discharge: Callejon de Huaylas, Peru." Hydrological Sciences Journal no. 50 (6):975-987. Juen, Irmgard, Georg Kaser, and Christian Georges. 2007. "Modelling Observed and Future Runoff from a Glaciated Tropical Catchment (Cordillera Blanca, Perú)." Global and Planetary Change no. 59 (1-4):37-48. (Mark Carey, University of Oregon)	All the relevant physical information on glacier dynamics is included either on the paragraph or tables. Vulnerability aspects of glacier retreat are dealt in the next section of the chapter.
180	44232	27	15	15	15	15	RABATEL, A., FRANCO, B., SORUCO, A., GOMEZ, J., CÁCERES, B., CEBALLOS, J. L., BASANTES, R., VUILLE, M., SICART, J.-E., HUGGEL, C., SCHEEL, M., LEJEUNE, Y., ARNAUD, Y., COLLET, M., CONDOM, T., CONSOLI, G., FAVIER1, V., JOMELLI, V., GALARRAGA, R., GINOT, P., MAISINCHO, L., MENDOZA, J., MÉNÉGOZ, M., RAMIREZ, E., RIBSTEIN, P., SUAREZ, W., VILLACIS, M. & WAGNON, P. 2012. Review article of the current state of glaciers in the tropical Andes: a multi-century perspective on glacier evolution and climate change. The Cryosphere Discuss., 6, 2477–2536 --- see also WG1 Ch4 (Georg Kaser, University of Innsbruck)	The Rabatel study has been included.
181	51680	27	15	18	15	23	For these statements, the author team should consider indicating its degree of certainty in the conclusions through use of calibrated uncertainty language. (Katharine Mach, IPCC WGII TSU)	The text has been modified to include uncertainty language.
182	53647	27	15	46	15	46	Please describe scenario and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	All the critical information is contained in Table referenced in text.
183	51681	27	16	5	16	5	This statement is presumably referring to projected outcomes, and if so, it would be helpful to clarify this through the wording of the statement. (Katharine Mach, IPCC WGII TSU)	Text has been modified.
184	46133	27	16	5	16	10	Isn't this inconsistent with what is said in page 15, lines 43 to 53? (Luis E. Garcia, World Bank)	The two paragraphs refer to different regions and different issues.
185	46134	27	16	6	16	6	Actually, Lempa is about the fourth largest. Usumacinta-Grijalva (Mexico-Guatemala-Belize) is the largest, followed by San Juan (Nicaragua-Costa Rica) and Coco o Segovia (Nicaragua-Honduras). See for example Lopez (2008) and GWP (2011). (Luis E. Garcia, World Bank)	Agreed. Text modified to reflect the comment.
186	51682	27	16	7	16	8	As appropriate, it would be helpful to specify the relevant time frame and climate/socio-economic scenarios for this projection. (Katharine Mach, IPCC WGII TSU)	A reference to table with details is included.
187	37624	27	16	12	16	24	This paragraph should be moved after page 15, line 36 (Hugo Hidalgo, Universidad de Costa Rica)	The structure of the section has first a priority on timeframe (first observations then future projections) and second on goegraphic setting. That is why the two paragraphs are separated.
188	51683	27	16	20	16	21	As appropriate, it would be helpful to specify the relevant climate/socio-economic scenarios here. Additionally, on line 22, is "if" more precise than "once"? (Katharine Mach, IPCC WGII TSU)	A reference to table with details is included.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
189	47784	27	16	21	16	24	There is an important clarification here. The discussion of Juen et al and Chevallier et al is good, but Baraer et al is making a CRITICAL point that is not discussed here: they show that the expected runoff reduction that Juen and Chevallier project as 20-50 years in the future IS ALREADY HAPPENING. There needs to be another sentence here reporting the findings of Barear et al 2012 because this significantly departs from the other studies. Please clarify this here. (Mark Carey, University of Oregon)	Comment appreciated. The results of the Barear study are highlighted in the section where we deal with trends in glacier retreat and hydrologic implications.
190	53648	27	16	26	16	37	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	A reference to table with details is included
191	40670	27	16	42	18	13	Forests restoration is another adaptation strategy that is being used in the region. Early warning systems. Private sector initiatives. Education. Capacity building. Technology transference, etc. There are several examples of adaptation in the region that are not the classic food security, water management, etc., which could also be mentioned. This reviewer can provide with some examples, that are also available from FOMIN, Practical Action, USAID, WWF, etc (Carmen Lacambra Segura, Grupo La era)	We have included those strategies that were discussed mostly in peer reviewed literature. Consider also that some strategies are included in other sections of the chapter
192	53649	27	16	48	17	9	Please describe time slice, scenarios, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	A reference to table with details is included.
193	53650	27	17	13	17	13	Please provide some examples. (Kristie L. Ebi, IPCC WGII TSU)	Text has been modified.
194	51684	27	17	19	17	22	For this statement, it would be helpful to specify the relevant time frame, as it is not completely clear even if this is a statement pertaining to observe for projected outcomes. (Katharine Mach, IPCC WGII TSU)	No formal scenarios have been assessed. The analysis relates to conceptual analysis of glacier melt reduction.
195	51685	27	17	23	17	23	The author team should revisit the formulation on this line to ensure it is not policy prescriptive. (Katharine Mach, IPCC WGII TSU)	Text has been modified.
196	35060	27	17	26	17	26	it should say "Actual vulnerability to climate variability and climate changes motivates....." (Lino Naranjo , Meteogalicia)	Text has been modified.
197	53651	27	17	34	17	37	Please provide some examples. (Kristie L. Ebi, IPCC WGII TSU)	More details are provided
198	51686	27	17	37	17	39	Several clarifications could be helpful for the reader: indicating specifically what the 2 wins represent on line 37 (development and climate change adaptation?) and clarifying what is meant by "the correct level" and "right combination." (Katharine Mach, IPCC WGII TSU)	Text has been modified.
199	53652	27	17	48	17	50	Please provide more information on policies that are maladaptive. (Kristie L. Ebi, IPCC WGII TSU)	More information has been provided.
200	51687	27	18	18	0	0	Section 27.3.2.1. The author team should consider cross-referencing chapter 4 here as appropriate. (Katharine Mach, IPCC WGII TSU)	Yes we have referred to other chapters of WG2 as well as from WG1 as needed
201	53653	27	18	25	18	27	Over what period? (Kristie L. Ebi, IPCC WGII TSU)	During the 1990's. Now in the text
202	53654	27	18	30	18	30	Annual emissions? (Kristie L. Ebi, IPCC WGII TSU)	Yes. Now clearly stated in the text.
203	51688	27	18	43	18	50	For these statements, the author team should consider specifying development time frames. Additionally, for the projection on lines 49-50, it would be helpful to indicate the relevant climate/socio-economic scenario as well. (Katharine Mach, IPCC WGII TSU)	Accepted. Time frames and projections are now given.
204	46927	27	18	44	18	45	Specific mention should be added of how hydrodams act as a driver of freshwater biodiversity loss (especially ichthyofauna) as a result of the negative impacts of river fragmentation and floodplain inundation cycle changes on migratory species reproduction. Refer to Chapter 3 on Freshwater in this report, which gives a good summary of the types of freshwater disruptions that can result from dams. An example is the expected impact of the Jirau Dam in Brazil (together with the Santo Antônio Dam) in wiping out the fishery of the giant Madeira River catfish (<i>Brachyplatystoma rouxeauxii</i> and <i>Brachyplatystoma platynemum</i>), not only in the Brazilian portion of the Madeira but also in Peru and Bolivia (e.g., Barthem & Goulding, 1997; Fearnside, 2006; 2009a,b). These catfish have, until now, been a major source of income and food for the local people in the Madeira Basin in these three countries. (Katy Yan, International Rivers)	I have cited our case study and Chapter 3, but did not add extra info because of space limitations.
205	53655	27	18	47	18	50	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Ok, see comment 203 above.
206	35363	27	19	1	19	3	With the fragment '...adequate environmental conditions for occurrence will dislocate towards the South and Southeast, precisely where fragmentation and habitat loss are worse', do you mean that bird and plant species will migrate to the S and SE, where fragmentation &c.? Do you not think your text is a bit convoluted? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Agreed, text has been changed to avoid confusion.
207	53656	27	19	1	19	4	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Ok, this is now given in the text except for the statement on fish that is based on fish physiology and not on modelling.
208	53657	27	19	16	19	16	Perhaps another descriptor than massive? (Kristie L. Ebi, IPCC WGII TSU)	Agreed with change in wording.
209	40671	27	19	19	19	21	Despite there are large protected areas in the region, if there is a shift in species composition and on ecosystems distribution, what will be the purpose of existing protected areas when those species have migrated (if they can) to non-protected areas? Protected areas are fixed but ecosystems and species do not have administrative boundaries, with a change in the environmental conditions, it is not possible to depend only on protected areas for the preservation and conservation of species. (Carmen Lacambra Segura, Grupo La era)	This is precisely what is said in the sentence. I may develop more this paragraph if space limitations allow.
210	54548	27	19	25	19	27	Please specify whether this is the contribution of global ecosystem conversion, or conversion in Central and South America only. (Michael Mastrandrea, IPCC WGII TSU)	Global. This is now specified.
211	51689	27	19	41	19	41	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This part of the text was deleted due to space constraints.
212	53658	27	19	47	19	51	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Replaced "likelihood" by "possibility"
213	39325	27	20	1	20	2	This reference indicates that Amazonian dieback is unlikely to happen under the CMIP3 scenarios. Rammig A, T. Jupp, K. Thonicke, B. Tietjen, J. Heinke, S. Ostberg, W. Lucht, W. Cramer, P. Cox, 2010, Estimating the risk of Amazonian forest dieback. New Phytologist, 187, 694-706 (Maria Assuncao Silva Dias, University of Sao Paulo)	Reference is now cited although text was not changed.
214	53659	27	20	4	20	9	Please describe scenario and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Done. Please note my suggestion to move this paragraph to another part of the text (agriculture).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
215	51690	27	20	5	20	6	It would be helpful to specify the "'worst-case scenario" in terms of the relevant climate/socio-economic scenario or other assumptions. (Katharine Mach, IPCC WGII TSU)	Done. Please note my suggestion to move this paragraph to another part of the text (agriculture).
216	52089	27	20	18	20	22	For the introduction to "ecosystem services" provided here, the author team should consider also providing a reference to the glossary for the report, which contains a definition of the term. (Katharine Mach, IPCC WGII TSU)	We have done as the reviewer suggested.
217	51691	27	20	28	20	28	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Agreed. "likely" replaced by "capable". This paragraph has been transferred to 27.6.2
218	51692	27	20	32	20	32	The author team may wish to revisit the phrasing on this line to ensure a formulation that is not prescriptive. (Katharine Mach, IPCC WGII TSU)	Agreed. "should" was replaced by "often". This paragraph has been transferred to 27.6.2
219	40672	27	20	37	20	41	It is important to highlight PES however it is also important to highlight the negative aspects of these schemes (enhancing monocultives, information only available for certain parts of the population, put a monetary value to something that cannot be valued.....). (Carmen Lacambra Segura, Grupo La era)	agreed. We have now added a sentence that lists some of the most reported setbacks. This paragraph has been transferred to 27.6.2
220	51693	27	20	44	20	44	For these percentages, it would be helpful to clarify the relevant time frame and baseline. (Katharine Mach, IPCC WGII TSU)	done
221	35364	27	20	50	20	52	There is something wrong in the sentence beginning in line 50, because it refutes both what is proposed in the preceding sentence and is asserted in the following one. In a nut, the sentence states that deforestation rate is larger under community management. This is not what it is intended to prove in lines 49-50 and 52-54. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	thanks! My mistake here. Porter-Bolland result actually shows that community managed areas are more efficient in protection against deforestation than PAs. I have added a reference that found opposite results
222	51694	27	21	8	0	0	Section 27.3.3. The author team may wish to consider and cross-reference chapters 5, 6, and 30. (Katharine Mach, IPCC WGII TSU)	We agree with the reviewer and we apologize for not making the cross-reference in this version due to a mistake. We will make sure this will be corrected in the final version.
223	35365	27	21	14	21	16	This text 'Anthropogenic drivers associated with climate change have implied in decreased ocean productivity &c.' is difficult to understand. If there were a logical implication, the effect of any climate change driver on a process would be substantiated; therefore, a climate change driver would directly or indirectly affect that process. The use of imply is confusing. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Agreed. I have just deleted "have implied in".
224	42904	27	21	23	21	24	It is written "Since the coastal states of Latin America and the Caribbean have a human population of more than 610 million, 3/4 of whom live within 200 km of the coast ". However, talking about population in the previous paragraphs it is mentioned that in CA and SA in 2011 the population was 435 millions. (José Daniel Pabón-Caicedo, Universidad Nacional de Colombia)	Disagree. Latin America and Caribbean includes more states (and therefore more population) than Central and South America. The definition of CA and SA by the IPCC does not include the Caribbean
225	51695	27	21	26	22	2	For the statements on page 21, lines 26-28, 37-38, 44-45, and 52-54, and on page 22, lines 1-2, the author team should consider indicating the relevant time frames as appropriate. (Katharine Mach, IPCC WGII TSU)	It does not apply to page 21, lines 44-45; and page 22 lines 1 and 2. Lines 52 to 54 were deleted. Lines 26-28 and 37-38 still being checked (Inigo Losada)
226	40673	27	21	33	21	35	Concerns about the use of this figure in this report. The baseline data for the model used is not state of the art and several variables that should have been considered were not considered. It is a good 1st regional scale approach but it does not really reflect the reality of the sub-regional dynamics. Might be good for particular areas, but does not portray sub-regional, national or local dynamics. It does not consider the intrinsic capacity of coastal systems to keep up with SLR in some areas or the resilience nor social or ecological. Areas that are marked as beaches are actually hard cliffs, it needs to be downscaled a bit otherwise can be very misleading. If the figure is going to be used it would be helpful a list of limitations for its interpretation. (Carmen Lacambra Segura, Grupo La era)	I disagree with the refs comment. This is the best science available for the region at the moment. As with any other modelling effort, interpretations have limits and this is implicit.
227	35061	27	21	37	21	41	ECLAC reference of 2011 was a very comprehensive study about Climate Change effects over coastal areas in Latin America, unfortunately this paragraph shows a very narrow perspective of its findings. It deserve a better discussion. (Lino Naranjo , MeteGalicia)	For space constraints we cannot expand on this topic.
228	53660	27	21	38	21	41	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Ok
229	53661	27	21	47	21	47	Please describe scenario and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Scenario is now mentioned.
230	53662	27	22	1	22	23	Please describe critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Ok
231	35366	27	22	11	22	13	This sentence is difficult to understand, because losses are not compared with the same metric. Whereas loss in magrove forests are shown in per cent (no time interval is provided) deforestation is given in annual rates. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	I have rephrased it. I mentioned the 1-2% annual deforestation twice. I now reduced the text and separated climate change from deforestation.
232	51696	27	22	11	22	30	For the statements on lines 11-18 and 29-30, the author team should consider specifying the relevant time frames, and for lines 11-13, the relevant climate/socio-economic scenarios. (Katharine Mach, IPCC WGII TSU)	Lines 11 to 13 were dealt with above. Time frame is not applicable to lines 14-18, because threat to species is immediate and not time dependent. Lines 29-30 now given
233	40674	27	22	20	22	21	Mangroves in Tumaco bay have been severely reduced and their resilience diminished, but there is a city in there, and these mangroves have been cleared for a combination of reasons, including a tsunami in 1979 that changed the bay's landscape including several mangrove islands. Tumaco bay mangroves do not represent the state of the mangroves along the Colombian Pacific shoreline. Lampis reference is correct, but it might be misleading in this paragraph. For references about Tumaco and Sea Level Rise see (www.invar.org.co, www.osso.org.co) the reviewer can provide with more references on mangroves in the region and particularly for the Pacific Coast of Colombia. (Carmen Lacambra Segura, Grupo La era)	Ok, rephrased the sentence to make sure that readers understand that mention is to the case of Tumaco Bay and not to the whole of Colombia. Thanks for the offer of more references, but this sections a tthis point has major space constraints.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
234	40675	27	22	47	23	25	The use of mangrove as adaptation strategies is not very well known in the region, whereas in Asia several countries have implemented coastal belts for coastal protection, very few documented examples occur in the region and it is an alternative to hard measures that small cities (most of the coastal cities are) would not be able to afford. However there needs to be an investment on understanding each particular area's coastal dynamics. This type of publication is ideal for people to start thinking about it. (Carmen Lacambra Segura, Grupo La era)	Agreed, thanks! No action required from us and no action taken.
235	51697	27	23	21	23	21	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Ok. "likely" deleted.
236	35367	27	23	25	23	25	'...incentives to, all of which...' Is there not something missing? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Ok, "to" deleted.
237	51698	27	23	28	0	0	Section 27.3.4. The author team may wish to consider and cross-reference chapter 7. (Katharine Mach, IPCC WGII TSU)	We have done as the reviewer suggested.
238	51699	27	23	38	23	39	It would be preferable to indicate the relevant time frame for the statement. (Katharine Mach, IPCC WGII TSU)	It was added.
239	53663	27	23	38	23	39	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	We have done as the reviewer suggested.
240	51700	27	23	53	23	54	The author team might consider providing a reference here to table 27-1. (Katharine Mach, IPCC WGII TSU)	We have done as the reviewer suggested.
241	38701	27	24	2	24	2	Include after (Barros, 2010). In the Argentine Pampas, positive impacts in the soya bean yield may be associated with weather types that reduce thermal stress during flowering and pod set stages (austral summer) and weather types which favour stability at harvest time (April) (Bettolli et al, 2009). Bettolli M.L., Vargas W., Penalba O.C., 2009. Soybean yield variability in the Argentine pampas in relation to synoptic weather types. Monitoring implications. Meteorological Application. Vol 16, N 4, Pages 501-511, DOI: 10.1002/met.148. (Olga Clorinda Penalba, Universidad de Buenos Aires)	It was added.
242	53664	27	24	6	24	8	Please describe time slice, scenario, and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	We have done as the reviewer suggested.
243	51701	27	24	20	24	23	For the statements, it would be helpful to indicate the relevant time frame. (Katharine Mach, IPCC WGII TSU)	It was added.
244	53665	27	24	25	24	28	Please refer to WGI. (Kristie L. Ebi, IPCC WGII TSU)	The paragraph was deleted
245	53666	27	24	30	24	45	Please describe scenario and other critical assumptions. (Kristie L. Ebi, IPCC WGII TSU)	Added in Table 27.6
246	51702	27	24	36	24	37	It would be helpful to clarify the mechanism accounting for this effect. Additionally, if "likely" on line 36 is being used per the uncertainties guidance for authors, it should be italicized; casual usage should be avoided. (Katharine Mach, IPCC WGII TSU)	It has been clarified. Likely was removed.
247	51703	27	24	43	24	45	The author team may wish to indicate the relevant climate/socio-economic scenario as appropriate. (Katharine Mach, IPCC WGII TSU)	Done, see Table 27-6
248	53667	27	24	47	26	35	Please describe time slice, scenarios, and other critical assumptions for all studies. (Kristie L. Ebi, IPCC WGII TSU)	Done, see Table 27-6
249	51704	27	24	52	24	54	Given the use of "will" in these sentences, the author team may wish to characterize uncertainties or provide qualification, potentially also using calibrated uncertainty language per the guidance for authors. (Katharine Mach, IPCC WGII TSU)	We have done as the reviewer suggested.
250	51705	27	25	8	25	19	For the statements on lines 8-10 and 16-19, the author team could consider specifying relevant climate/socio-economic scenarios further. Additionally, if "very likely" on line 9 (and later "likely" on line 46) are being used per the uncertainties guidance for authors, they should be italicized; casual usage of these reserved likelihood term should be avoided. (Katharine Mach, IPCC WGII TSU)	We have done as the reviewer suggested.
251	43792	27	25	13	25	16	A recent study assesses vulnerability dynamics in smallholder systems at the regional scale of Northeast Brazil (Sietz in prep. for Global Environmental Change Journal, based on Sietz 2011: Chapt. 5.2). It investigates vulnerability trends in smallholder systems which are induced by changes in budget, labour allocation and quality of productive resources. This study presents a novel approach to assessing vulnerability dynamics: it refines broad vulnerability patterns identified for Northeast Brazil dynamically at the municipal level. This dynamic refinement shows that vulnerability had deteriorated in nearly half of the study region in the late 1990s. One important aspect was the overuse of both already degraded and still relatively preserved natural resources. This overuse has the potential to reinforce poverty, such as that illustrated in east Pernambuco and in irrigated areas along the São Francisco River. In response to the degradation of natural resources, smallholders orientated their livelihoods increasingly towards off-farm activities. Though reducing their vulnerability to climate variability, these activities exposed them to other types of problematic stimuli, such as wage fluctuations. REFERENCES: Sietz, D. (2011) Dryland vulnerability - Typical patterns and dynamics in support of vulnerability reduction efforts, PhD Thesis, Faculty of Science, University of Potsdam, Germany, 135pp., Available at: http://opus.kobv.de/ubp/volltexte/2012/5809/pdf/sietz_diss.pdf ----- Sietz (in prep. for Global Environmental Change Journal) Dynamic refinement of global vulnerability patterns at regional scale: Endogenous changes of smallholder vulnerability in Northeast Brazil. To be submitted to Global Environmental Change in September 2012. (diana sietz, Wageningen University)	It was added.
252	46142	27	26	0	0	0	Section 27.3.4.2 Adaptation practices: In reference to Chapter 15, page 17, lines 17 to 21 which talk about parametric insurance in the agricultural sector. It may be of interest mentioning in this section that this is being applied in Latin America (see for example World Bank 2010). Also with support from The Inter-American Development Bank, a Central American climate data base was established in support of a parametric agricultural insurance, among other objectives (CRRH-SICA, 2010). (Luis E. Garcia, World Bank)	It was included.
253	35368	27	26	2	26	2	In the table 27-6, what does each of 'No/Yes', 'Yes' in red, and 'Yes?' mean in the column headed CO2? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	It was clarified.
254	51706	27	26	40	26	40	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	It was clarified.
255	35372	27	26	40	28	13	Not a single word on agroecology! Wow! (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	It was added.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
256	51707	27	26	51	26	51	It would be helpful to indicate why strategies would benefit from the aspects described here. (Katharine Mach, IPCC WGII TSU)	Added: because of the need to be prepared for water stress periods
257	40676	27	27	5	27	7	Growing coffee in the shade has been done for a long time, long before climate change became an issue. It might have an alternative benefit that is adaptation. (Carmen Lacambra Segura, Grupo La era)	Yes, we have done as the reviewer suggested.
258	46135	27	27	9	27	10	This should be highlighted in the executive summary and conclusions of this chapter. (Luis E. Garcia, World Bank)	it will be included t in the summary
259	35369	27	27	17	27	17	'...useful in countries contributing to 71% of the maize production in the pampas region...'. Countries? Counties may be? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Yes, counties.
260	35370	27	27	24	27	25	in '...use to engender an increased ability to...'. What do you think about the following simpler alternative text: '...are increasingly skillful to...'? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Yes, we have done as the reviewer suggested.
261	37625	27	27	28	27	28	Change renoff to runoff (Hugo Hidalgo, Universidad de Costa Rica)	Yes, we have done as the reviewer suggested.
262	35371	27	28	6	28	8	'...the development of new varieties...have the potential to decrease emissions related to agriculture by lowering the use of fossil fuels...' Could you be a bit more specific on how to do that? Are you implicitly referring to breeding aimed at, for instance, making plants more amenable to biofuel production? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	This paragraph was substantially changed (reduced). We tried to be clearer about classical breeding.
263	37626	27	28	11	28	11	Change Ca to CA (Hugo Hidalgo, Universidad de Costa Rica)	Yes, we have done as the reviewer suggested.
264	51708	27	28	16	0	0	Section 27.3.5. The author team could consider in this section cross references to relevant material in chapters 8 or 11. (Katharine Mach, IPCC WGII TSU)	WE WILL CROSS REFERENCE WITH CH. 8 AND 11 WHEN APPROPRIATE
265	51709	27	28	29	28	29	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	LIKELY USED WITH IPCC PROTOCOL. CHANGED TO ITALICS
266	35373	27	28	43	28	44	For transparency, let me suggest replacing '...Buenos Aires province and Metropolitan region...' with '...Buenos Aires province and Buenos Aires metropolitan region in Argentina...' Notice that the subject in the preceding sentence is São Paulo. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	AGREED - PROBABLY BEST AS METROPOLITAN 'AREA' RATHER THAN REGION. THE SECOND POINT MADE HERE IS NOT A PROBLEM.
267	51710	27	28	43	28	44	The author team could consider specifying the relevant time frame for the statement. (Katharine Mach, IPCC WGII TSU)	COMMENT ADDRESSED
268	35374	27	29	6	29	6	Do you mean that the MRSP was a project developed between 2009 and 2011? In this case why not insert 'was a project' between '(MRSP)' and 'developed'? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	COMMENT ADDRESSED
269	51711	27	29	8	29	10	This statement would benefit from clarification. (Katharine Mach, IPCC WGII TSU)	Yes, we have done as the reviewer suggested. We broke the sentence in two. The first one end after "health". The next one starts with 'THESE IMPACTS ARE LINKED TO A PROJECTED INCREASE...'
270	51712	27	29	16	29	16	It would be helpful to specify the relevant baseline for this projected warming. (Katharine Mach, IPCC WGII TSU)	COMMENT ADDRESSED
271	37627	27	29	20	29	23	This needs a reference (Hugo Hidalgo, Universidad de Costa Rica)	Reference has been included
272	51713	27	29	33	29	33	For this statement, it would be helpful to clarify the degree to which changing patterns of disease vectors have been rigorously attributed to changes in climate. (Katharine Mach, IPCC WGII TSU)	NOTHING POINTS TO ANYTHING SPECIFIC - MERELY A CONTRIBUTING FACTOR
273	37628	27	29	46	29	46	Strange citations, see also lines 52-53 of this same page (Hugo Hidalgo, Universidad de Costa Rica)	This related to formatting issues only that has been resolved in the SOD.
274	37629	27	29	47	29	49	Is this estimate for Latin America? (Hugo Hidalgo, Universidad de Costa Rica)	COMMENT ADDRESSED.
275	45468	27	29	51	29	53	Also worth citing here is UN-Habitat Global Report on Human Settlements 2011, already in your bibliography. (Rafael Tuts, United Nations Human Settlements Programme)	Will add this reference
276	51714	27	29	54	29	54	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	LIKELY USED WITH IPCC PROTOCOL. CHANGED TO ITALICS.
277	51715	27	30	5	30	6	For the direct and indirect effects of climate change described on these lines, the author team may wish to use more qualified wording since not all of these changes are projected with high confidence, as for example could be asserted for changes in floods. (Katharine Mach, IPCC WGII TSU)	COMMENT ADDRESSED.
278	35375	27	30	6	30	6	What does '...an urban coin of challenges...' mean? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	COMMENT ADDRESSED.
279	45469	27	30	12	30	12	For 'poverty linked to vulnerability', see Luque, Andres, Gareth Edwards, and Christophe Lalande. 2013. "Climate change governance at the local level: new tools to respond to old deficiencies in Esmeraldas, Ecuador." Local Environment: The International Journal of Justice and Sustainability. Forthcoming. (Rafael Tuts, United Nations Human Settlements Programme)	REFERENCE ADDED.
280	37630	27	30	13	30	13	Strange citation (Hugo Hidalgo, Universidad de Costa Rica)	This related to formatting issues only that has been resolved in the SOD.
281	51716	27	30	17	30	17	It would be helpful to clarify what type of "planning" is meant here. (Katharine Mach, IPCC WGII TSU)	COMMENT ADDRESSED.
282	45470	27	30	17	30	19	For discussion of a SMALL city example of an adaptation strategy/plan (in Esmeraldas, Ecuador), see Luque, Andres, Gareth Edwards, and Christophe Lalande. 2013. "Climate change governance at the local level: new tools to respond to old deficiencies in Esmeraldas, Ecuador." Local Environment: The International Journal of Justice and Sustainability. Forthcoming. (Rafael Tuts, United Nations Human Settlements Programme)	REFERENCE ADDED.
283	53668	27	30	22	30	22	Which initiatives? (Kristie L. Ebi, IPCC WGII TSU)	COMMENT ADDRESSED.
284	53669	27	30	24	30	24	What longer term changes? (Kristie L. Ebi, IPCC WGII TSU)	COMMENT ADDRESSED.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
285	53670	27	30	27	30	34	Please ensure consistency with chapter 13. (Kristie L. Ebi, IPCC WGII TSU)	WE WILL CROSS REFERENCE WITH CH. 8 AND 11 WHEN APPROPRIATE.
286	37631	27	30	37	30	37	Strange citation (Hugo Hidalgo, Universidad de Costa Rica)	This related to formatting issues only that has been resolved in the SOD.
287	35376	27	30	41	30	41	'...clear evidence that incorporation into wider city...' Incorporation of what? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	COMMENT ADDRESSED.
288	53671	27	30	41	30	41	Incorporation of what? (Kristie L. Ebi, IPCC WGII TSU)	AS ABOVE.
289	51717	27	30	41	30	42	The author team may wish to revisit the phrasing of this sentence to ensure a formulation that would not be interpreted as potentially prescriptive. (Katharine Mach, IPCC WGII TSU)	COMMENT ADDRESSED.
290	46464	27	30	52	30	53	With respect to the sentence: "Renewable energy (RE) is any source of energy that can be renewed within a reasonable length of time so that, differently from fossil fuels, the accumulation of greenhouse gases in the atmosphere could be avoided", even if Renewable Energies are the best option to avoid the emission of GHG (and aerosols of black carbon type that has positive radiative forcing), it must be taken into account that some emission will occur in different ways: during preparation of land (to be used for solar and wind farms, etc), during the production of the system (solar cells, solar collectors, biodigestors, wind turbines, etc), during maintenance and in the burning of biomass, among others. So, please change the word "avoided" at the end of the sentence by "reduced significantly" (or similar). (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Comment is correct. The text was changed accordingly.
291	46136	27	31	2	31	5	There is a water-energy nexus in all types of energy generation. If it is true that hydropower is the dominant source, some numbers should be given about the other sources to justify their dismissal. (Luis E. Garcia, World Bank)	The numbers (with references) are given in Table 27.6.
292	51718	27	31	11	31	12	For this statement, it would be helpful to clarify if hydroelectric plants accounted for 83% of renewable energy? (Katharine Mach, IPCC WGII TSU)	The text is clear at this point (line 12). It's 83% of the total energy produced in Brazil.
293	51719	27	31	28	31	28	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	OK, the text was altered accordingly.
294	51720	27	31	34	31	34	"very likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	OK, the text was altered accordingly.
295	53672	27	31	37	31	37	All resources without exception? (Kristie L. Ebi, IPCC WGII TSU)	The phrase was attenuated by using the term "some" instead of "all".
296	51721	27	32	4	32	50	"likely" on lines 4, 5, 19, 35, 40, 50 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The term "likely" was exchanged by another term with approximately the same connotation. In some cases they were italicized to follow orientation of IPCC
297	51723	27	32	8	32	8	It would be helpful to clarify what is meant here by "former." (Katharine Mach, IPCC WGII TSU)	Text was changed to be clearer.
298	35377	27	32	18	32	25	What do you mean by '...the increase in the hydrolysis technologies is likely to balance the requirement of land for biomass crops...'? In the next sentence, you refer specifically to sugarcane, and you broadly say that a more thorough use of biomass for biofuel production through the hydrolysis of cellwall constituents would diminish both social and environmental impacts, because you imply that one hectare of sugarcane would yield more bioethanol than currently, when bioethanol is mostly obtained from the fermentation of cane sugar. Provided I'm right in my interpretation of the commented text, could you make the latter clearer and more straightforward? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	More text was added explaining better why lignocellulose as a source of sugars for fermentation would have an impact in bioethanol production.
299	51722	27	32	19	32	19	It would be helpful to further clarify the point being made in the statement. (Katharine Mach, IPCC WGII TSU)	The same as above. The text should be hopefully clearer now.
300	37632	27	33	8	33	8	Change smalle to smaller (Hugo Hidalgo, Universidad de Costa Rica)	Yes, we have done as the reviewer suggested.
301	46465	27	33	8	33	8	Please correct the word: "smalle" by "smaller" in the text: "However, for smalle countries it might". (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Yes, we have done as the reviewer suggested.
302	46466	27	33	9	33	9	Same as before for "geogermical" by "geothermal" in the text: "Instead, they could benefit in the future of other types of RE, such as geogermical," (Rubén Piacentini, Institute of Physics Rosario (CONICET - National University of Rosario))	Yes, we have done as the reviewer suggested.
303	51724	27	33	9	33	10	It would be helpful to indicate briefly what these types of renewable energy are, with a bit further introduction in context. (Katharine Mach, IPCC WGII TSU)	A phrase was added with a short explanation for why the indicated Res would be more suitable for smaller countries.
304	53673	27	33	10	33	10	Some readers may not be familiar with the term eolic. (Kristie L. Ebi, IPCC WGII TSU)	Explanation in parenthesis added.
305	46928	27	33	14	33	18	The term sustainability here is meaningless if no international standards are mentioned. There are a range of international standards such as the UN Declaration on the Rights of Indigenous Peoples or the International Labour Organization Convention 169, which explicitly mentions that indigenous people shall not be removed from their ancestral lands for development projects without their free, prior and informed consent (FPIC). It would be good to include a warning in this section about the FPIC concerns and human rights violations that are often associated with large development projects such as hydropower in these region, and the national and international standards that should be followed to avoid repeating these mistakes. In addition, while there is large hydropower potential in this region, climate models predict a decrease in flows, as in the case of Brazil, where a 70% decrease in flows has been predicted (see http://www.eenews.net/public/climatewire/2012/01/19/2). (Katy Yan, International Rivers)	Please see the definition of sustainability in the glossary: ...is a dynamic process that warrants and protects the equitable endurance of natural and human systems in the present and in the future. Thus, what is asked is include in the conotation of sustainability as used in the entire report.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
306	53674	27	33	38	33	38	Please define ILUC. (Kristie L. Ebi, IPCC WGII TSU)	The meaning is indicated two paragraphs above. It should be in the glossary as a general definition for the whole AR5.
307	53675	27	33	42	33	43	You might provide further explanation of these risks. (Kristie L. Ebi, IPCC WGII TSU)	There is further explanation, or comments that explain better the 3 risks in the lines below (44 to 46).
308	35378	27	34	8	34	9	The sentence 'These teleconnections...instance' is really obscure. What is the relationship between soybean expansion and avian flu in China? The 'due' in line 8 is quite a challenge for a complete understanding of the sentence. (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	The term can be found in English dictionary, meaning: "casual connection or correlation between meteorological or other environmental phenomena that occur a long distance apart". Please take a look at the references cited. Teleconnections are defined there. The possible teleconnections with Avian flu is shown in Figure 2 of Nepstad et al. 2006.
309	51725	27	34	23	0	0	Section 27.3.7.1. For a number of examples provided in this section, the author team should further consider the characterization provided regarding linkages to climate change. Where formal attribution of the observed change to change in climate has not occurred, the author team should ensure that the wording used does not imply rigorous attribution accordingly. In particular, the chapter team should consider the examples presented on page 34, lines 34-37; page 34, line 53, through page 35, line 2; page 35, lines 17-18, 41, and 43-44; and page 36, line 10. (Katharine Mach, IPCC WGII TSU)	All efforts have been made to be cautious in assigning formal attribution and/or causality, as human health has multiple confounding factors. Examples presented on page 34, lines 34-37 do not refer about attribution, but to the concomitant variations in disease incidence along with climatic variables. Likewise in page 34, line 53 through page 35, line 2 ("due to..." has been changed for "amidst changes in..."). Also, page 35 lines 17-18 have been rephrased. Page 35, line 41 has been deleted, and lines 43-44 have been rephrased, as well as Page 36, line 10.
310	46137	27	34	25	34	27	Although some endemic previously eradicated diseases are likely to return due to climate change in some areas (and the ones mentioned are important), it would be useful to have some numbers about morbidity, mortality and disabilities due to other causes. (Luis E. Garcia, World Bank)	Although a relevant comment, it is impossible to attend this request. It would entail reviewing all the medical and human health literature of the continent, which is out of the scope and way beyond the objectives of the AR5.
311	37633	27	34	30	34	31	I assume that these deaths and displaced people were caused by the direct influence of the floods and indirect outbreaks of disease (Hugo Hidalgo, Universidad de Costa Rica)	Deaths and displaced population were triggered by the flooding of the territory.
312	53676	27	34	34	34	36	Please ensure the attribution statements are supported by the literature (Kristie L. Ebi, IPCC WGII TSU)	See response to comment No. 311. On this particular comment, we have changed "owing to" for "concomitantly with", to avoid the direct attribution.
313	53677	27	34	51	34	51	Do you mean weather or climate variability and not climate? (Kristie L. Ebi, IPCC WGII TSU)	It has been clarified.
314	53678	27	35	4	35	8	Please ensure the attribution statements are supported by the literature. Also, to what extent are the changes due to poor vector control? (Kristie L. Ebi, IPCC WGII TSU)	With regard to schistosomiasis, there are no "vectors" as such, but intermediary hosts in the water (snails). Besides, disentangling the separated effects of environmental factors from poor vector control becomes quite difficult, and requires modelling studies (non-existent).
315	51726	27	35	7	35	20	"likely" on lines 7 and 20 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Yes. The respective statements have been corrected accordingly.
316	37634	27	35	10	35	10	Change Cost Rica to Costa Rica (Hugo Hidalgo, Universidad de Costa Rica)	Yes, we have done as the reviewer suggested.
317	39327	27	35	41	35	41	is it really climate change or climate variability? (Maria Assuncao Silva Dias, University of Sao Paulo)	The phrase has been deleted.
318	53679	27	35	41	35	41	Please ensure the attribution statements are supported by the literature (Kristie L. Ebi, IPCC WGII TSU)	The phrase has been deleted.
319	53680	27	36	10	36	15	Please ensure the attribution statements are supported by the literature (Kristie L. Ebi, IPCC WGII TSU)	These paragraphs have been re-written.
320	35379	27	36	23	36	23	NTD? DALY? Is there a glossary somewhere? (Hector Ginzo, Academia Argentina de Ciencias Ambientales)	Yes. Both have been suggested for inclusion in the general glossary.
321	53681	27	36	25	36	25	Are there other reasons? (Kristie L. Ebi, IPCC WGII TSU)	Yes, indeed. Some have been added. Impossible to cover all aspects owing to tight space constraints.
322	45471	27	36	26	36	28	In support of the assertion about the 'high risk' nature of many information settlements in the region, and the need to assess those vulnerabilities, see Luque, Andres, Gareth Edwards, and Christophe Lalande. 2013. "Climate change governance at the local level: new tools to respond to old deficiencies in Esmeraldas, Ecuador." Local Environment: The International Journal of Justice and Sustainability. Forthcoming. (Rafael Tuts, United Nations Human Settlements Programme)	Done. Thanks for the reference.
323	46138	27	36	34	36	34	Yes, vulnerable, but the attribution to climate change may not be consistent with what SREX (IPCC 2012) says about hurricanes. (Luis E. Garcia, World Bank)	Most of this paragraph has been deleted.
324	53682	27	36	34	36	42	Most of this is covered earlier. (Kristie L. Ebi, IPCC WGII TSU)	Agree. Most of the paragraph has been deleted.
325	51727	27	36	45	0	0	Section 27.3.7.2. The author team should revisit some formulations used in this section to ensure they would not be interpreted as policy prescriptive. In particular, the author team should consider the phrasing on page 36, line 52, and page 37, line 1-2, 6, and 8. (Katharine Mach, IPCC WGII TSU)	I respectfully disagree. AR5 needs to discuss the peer-reviewed literature dealing with "Adaptation Strategies and Practices". We are not prescribing policies, but illustrating what the literature is focusing on. Governments need this input to establish their policies, based on concrete ideas, and not out of the blue

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
326	42188	27	37	0	40	0	Section 27.4: this section is far too academic and high-level. Even this reviewer, not being a social scientist, has problems following the text. I think this should be reworked, including concrete examples and being more specific to SA and CA. (Wouter Buytaert, Imperial College London)	This section has been written by a non-social scientist and is the result of various years of experience in adaptation in South America. Some aspects were simplified in order not to repeat concepts already introduced in Adptation Chapters. Some examples specific to SA and CA have been added.
327	53683	27	37	6	37	18	What is the effectiveness of current programs, such as for vectorborne diseases? (Kristie L. Ebi, IPCC WGII TSU)	Too early to judge (malaria-Colombia). 11% reduction of methane emissions in Sao Paulo.
328	53684	27	37	23	0	0	Please ensure this section is consistent with the adaptation chapters and chapter 2. Because these chapters cover the framework and basic information, it would be helpful if this section focused on the region. (Kristie L. Ebi, IPCC WGII TSU)	Some aspects were simplified in order not to repeat concepts already introduced in the Adptation Chapters. Some examples specific to SA and CA have been added.
329	37724	27	37	27	0	0	Can you give couple of example references for "previous reports?" (George Backus, Sandia National Laboratories)	We actually referred to definitions which are now in the WG2 glossaries. We retrieved these words.
330	51728	27	37	45	37	45	It would be helpful to clarify further what is meant by "somehow" here. (Katharine Mach, IPCC WGII TSU)	The word was inappropriate and deleted.
331	43796	27	37	51	37	54	Recent analyses of typical patterns of vulnerability are able to respond particularly to the need of rationally allocating the limited funds available to strengthen development (Jäger et al. 2007, Kok et al. 2010, Sietz et al. 2011 a and b). The analyses of vulnerability patterns categorise the multiple dimensions of vulnerability for example in global drylands and in smallholder systems in the Peruvian Altiplano (Sietz et al. 2011a and b). The proposed cluster approach presents one way of dealing with the complex vulnerability-creating mechanisms. This approach is useful to understand functional similarities and differences from a broader perspective and can be applied to any socio-ecological system. The perspective on an intermediate functional level is less general than a major, all-embracing theory, but apply to more than one individual case. Therefore, it enables the setting of priority interventions for vulnerability reduction and supports related monitoring efforts based on the manageable number of key indicators. REFERENCES: Jäger, J., Kok, M., Mohamed-Katerere, J.C., Karlsson, S.I., Lüdeke, MKB., Dabelko, G.D., Thomalla, F., de Soysa, I., Chenje, M., Filcak, R., Koshy, L., Long Martello, M., Mathur, V., Moreno, A.R., Narain, V. and Sietz, D. (2007) Vulnerability of people and the environment: Challenges and opportunities. In: Global Environment Outlook: Environment for development (GEO-4). UNEP, Progress Press, Valletta, Malta, pp. 301-360. ----- Kok, M., Lüdeke, MKB., Sterzel, T., Lucas, P.L., Walther, C., Janssen, P., de Soysa, I., Tekelenburg, T., Sietz, D. and Brighenti, J. (2010) Quantitative analysis of patterns of vulnerability to global environmental change. Netherlands Environmental Assessment Agency, Potsdam Institute for Climate Impact Research, Norwegian University of Science and Technology. ----- Sietz, D., Lüdeke, MKB. and Walther, C. (2011a) Categorisation of typical vulnerability patterns in global drylands. Glob. Environ. Chang. 21: 431-440. ----- Sietz, D., Mamani Choque, S.E. and Lüdeke, MKB. (2011b) Typical patterns of smallholder vulnerability to weather extremes with regard to food security in the Peruvian Altiplano. Reg. Environ. Chang., Published online: 15 November 2011, DOI: 10.1007/s10113-011-0246-5. (diana sietz, Wageningen University)	We are thankful for this comment and the referenced literature. We decided to include most of the suggested papers although in different parts of the section 27.4.
332	46141	27	38	0	0	0	Section 27.4.2 Practical Experiences of Adaptation, Including Lessons Learned: I think it would be of interest to mention the work made by CRRH/SICA (2006) about impacts and adaptation in Central America. Also to include here something about the climate fora in Central America. Central American countries have already made some 34 Climate Fora, events which bring together meteorologists from all countries of the region about three times a year (beginning of the rainy season, beginning of the "dog days" or mid-summer recess of the rains and end of the year when cold fronts arrive). The purpose of these fora is to produce climate forecasts with a horizon of three months. These projections are then analyzed by specialists from different user sectors such as agriculture, fisheries, water and sanitation, health and nutrition, energy and risk management, who use them to make specific recommendations for their sector (SICA, 2011). (Luis E. Garcia, World Bank)	Thanks for this specific example that was added in the section.
333	45472	27	38	2	38	7	We suggest noting the role and possible impact of local leaders. See UN-Habitat Global Report on Human Settlements 2011: 109, 120-121. (Rafael Tuts, United Nations Human Settlements Programme)	We found reference to local and organizational leadership in Chapter 5, pp. 120-121. We added the reference.
334	53685	27	38	10	0	0	Because the adaptation chapters and chapter 2 cover the framework and basic information, it would be helpful if this section focused on the region. This section should focus on the region, providing lessons learned and examples. (Kristie L. Ebi, IPCC WGII TSU)	Examples specific to SA and CA have been added.
335	51729	27	38	27	38	27	The author team should consider further clarifying the reasons for which this undermining would occur. (Katharine Mach, IPCC WGII TSU)	We added the following comment: "when local, short-term strategies to deal with specific threats or challenges do not integrate a more holistic and long-term vision of the system at threat". The general idea coherent with other studies referenced in this section, is that the lack of global/holistic vision/analysis of the system as well as along-term consequences of short-term strategies can actually lead a more negative results on the long-term and therefore increase the vulnerability of the socio-economic system at threat.
336	53686	27	39	5	0	0	This section could take the perspective of incremental, transitional, and transformational adaptation. (Kristie L. Ebi, IPCC WGII TSU)	Although this perspective was not specifically referenced in the text (we did not find application to SA and CA), we consider that many initiatives or recommendations referenced in the section share similar concepts.

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337	42190	27	40	0	0	0	Section 27.6: the following recent publication is probably relevant here: Finer, M., & Jenkins, C. N. (2012). Proliferation of hydroelectric dams in the Andean Amazon and implications for Andes-Amazon connectivity. <i>PLoS one</i> , 7(4), e35126. doi:10.1371/journal.pone.0035126 (Wouter Buytaert, Imperial College London)	The reference has been included.
338	46929	27	40	3	40	6	The text should also cite discussions of potential replacement of lost hydropower generation capacity utilizing peak-load performing eolic power and solar power, as well as the potential for energy efficiency to recuperate the same. It should be noted that Brazil is currently expanding investment in all three areas. (Katy Yan, International Rivers)	Except from the study by Lucena et al (2009) there are no other studies on the expected change in the electricity generation matrix due to climate change impacts.
339	46930	27	40	11	40	52	This section does not mention the significance of greenhouse gas emissions from tropical reservoirs particularly from Brazilian reservoirs, or the risk of glacial lake outburst floods from glaciers in the Andes. Amazonian dams produce large amounts of greenhouse gases, especially during their first ten years of operation, has been shown in many peer-reviewed studies in the scientific literature (e.g. e.g., Abril et al., 2005; Delmas et al., 2004; Fearnside, 2002, 2004, 2005a, 2006a, 2008, 2009a, 2011; Kemenes et al., 2007, 2007, 2011; for a full bibliography, see: http://www.internationalrivers.org/node/3630). Tropical dams contribute to climate change by emitting methane, a greenhouse gas that traps 25 times as much heat as CO2 over a century. Brazilian researchers estimate that methane from dams is responsible for around 4% of human-caused global warming. Balbina Dam in Brazil produces ten times the emissions of a conventional coal-fired power plant. This section also does not mention how hydrodams can interrupt significant ecosystem services, such as natural floodplain inundation cycles, soil deposition, and water availability, that are important to Ecosystem-based Adaptation (EbA) strategies of forest and soil-based carbon absorption. In addition, nutrients carried by the Amazon River into the Atlantic Ocean help absorb significant amounts of atmospheric CO2 by fertilizing coastal CO2-consuming plankton. However, large like Belo Monte on the Madeira could drastically reduce these carbon-capturing plankton. (Katy Yan, International Rivers)	The text has been modified to include this debate.
340	48233	27	40	15	40	15	While the statement “Hydropower is seen as a major contributor to mitigating GHG emissions worldwide” represents a commonly expressed view, it has also been challenged for dams in tropical forest areas such as Amazonia where many of Latin America’s future hydroelectric projects are planned. Certainly the existence of significant GHG emissions from tropical dams needs to be acknowledged here. I suggest a text such as the following: “While hydropower is often seen as contributing to mitigating GHG emissions, this role depends heavily on both the physical and institutional circumstances of each dam (e.g., Fearnside, 2012). Hydroelectric dams in tropical forest areas such as Amazonia emit substantially more GHGs than do dams in other biomes (e.g., Abril et al., 2005; Fearnside, 2002, 2005; Fearnside and Pueyo, 2012; Kemenes et al., 2007, 2011; Ometto et al., 2011). Unlike other energy sources, dams emit much more GHGs during their first years of operation; for dams being built now this represents the critical period for mitigation to avoid exceeding pre-industrial temperature by more than 2°C.” The next paragraph should then begin as: “Hydropower depends on water, thus making it likely to be affected by potential impacts of climate change (see section 27.3.1.1). The CA and SA regions constitute a unique example to study this relation between climate and energy.” (Philip Fearnside, INPA)	The text has been modified to include this debate.
341	51730	27	40	16	40	16	“likely” -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Language has been changed.
342	46139	27	40	32	40	32	Actually, Lempa is about the fourth largest. Usumacinta-Grijalva (Mexico-Guatemala-Belize) is the largest, followed by San Juan (Nicaragua-Costa Rica) and Coco o Segovia (Nicaragua-Honduras). See for example Lopez (2008) and GWP (2011). (Luis E. Garcia, World Bank)	The text has been modified.
343	53687	27	40	39	40	40	Examples would be helpful. (Kristie L. Ebi, IPCC WGII TSU)	Examples provided.
344	42189	27	40	44	0	0	Buytaert et al. (2011) is not a relevant reference here. The authors probably refer to Buytaert, W., Vuille, M., Dewulf, A., Urrutia, R., Karmalkar, A., Céleri, R., 2010. Uncertainties in climate change projections and regional downscaling in the tropica Andes: implications for water resources management. <i>Hydrol. Earth Syst. Sci.</i> , 14, 1247-1258, 2010. (Buytaert et al., 2011 is referenced correctly in other parts of the report) (Wouter Buytaert, Imperial College London)	Reference modified.
345	46931	27	41	1	41	27	Adaptation measures in this section should examine the following alternative energy studies for viable adaptation and mitigation options in Guatemala (http://www.internationalrivers.org/files/attached-files/energia_ingles_072412_0.pdf) and Chile (English summary: http://www.internationalrivers.org/node/2454 ; also see http://www.chilesustainable.net/2012/01/01/libro-chikle-necesita-una-gran-reforma-energetica). A 2012 study, "The Vulnerability of Energy Systems to Climate Change," found that by 2040, Brazil will see significant reductions in hydropower production as a result of a drier climate, and will need to invest US\$503 billion to counter these impacts. (Katy Yan, International Rivers)	Peer reviewed literature on the effects of climate change on Brazil and Chile energy systems have been included in the assessment.
346	51731	27	41	30	41	53	These missing sections should be supplied--in particular the missing frequently asked questions--by the 2nd order draft. (Katharine Mach, IPCC WGII TSU)	I have inserted Case Study II here. This case study answers that directly FAQ 27.2
347	40677	27	41	36	0	0	This section is crucial, without a basic understanding on how the system works, of the local and regional climate, and on how the various systems can respond (social and environmentally) it will be very difficult to inform decision makers so that they can take the best decisions and plan adequately in a changing environment (Carmen Lacambra Segura, Grupo La era)	This section has been provided in the SOD and the comment addressed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
348	47785	27	42	1	42	1	Your FAQ #1 asks about the impact of receding glaciers on natural and HUMAN systems. But the chapter never addresses the HUMAN systems at all. This is a huge oversight as this is a well-studied topic with some important impacts. There is in the current chapter some mention of declining water supplies, but this is not tied to the human systems. These impacts on human systems include: (1) glacier-related disasters such as glacial lake outburst floods (GLOFS) that continue to threaten the region at lakes such as Palcacocha above the city of Huaraz, Peru, at Lake 513 above the city of Carhuaz, Peru (see Carey et al. 2012a); (2) water conflicts over real and projected water supplies from melting glaciers and glacier-fed reservoirs, such as the severe and longstanding conflict at Lake Paron, Peru, in the Cordillera Blanca where local residents and the multi-national company Duke Energy have been locked in a long social and political conflict about the water below melting Andean glaciers (see Carey et al. 2012b); (3) impacts on alpine tourism, mountaineering, adventure tourism, etc. (see Carey 2010). THERE ARE MORE IMPACTS ON THE HUMAN SYSTEMS, AND FOR AREAS BEYOND PERU'S CORDILLERA BLANCA. THESE ABOVE ARE JUST A FEW EXAMPLES. PLEASE LET ME KNOW (carey@uoregon.edu) IF YOU WOULD LIKE ME TO ADD A PARAGRAPH TO THE CHAPTER. I AM ALREADY A CONTRIBUTING AUTHOR FOR CHAPTER 18, AND HAVE ALSO WORKED WITH AUTHORS ON CHAPTER 28, SO I AM WELL-PREPARED AND READY TO CONTRIBUTE TO THIS CHAPTER 27. Citations above that should be added: Carey, Mark, Christian Huggel, Jeffrey Bury, César Portocarrero, and Wilfried Haeblerli. 2012. "An Integrated Socio-Environmental Framework for Glacier Hazard Management and Climate Change Adaptation: Lessons from Lake 513, Cordillera Blanca, Peru." Climatic Change no. 112 (3-4):733-767. Carey, Mark, Adam French, and Elliott O'Brien. 2012. "Unintended Effects of Technology on Climate Change Adaptation: An Historical Analysis of Water Conflicts below Andean Glaciers." Journal of Historical Geography no. 38 (2):181-191. Carey, Mark. 2010. In the Shadow of Melting Glaciers: Climate Change and Andean Society. New York: Oxford University Press. (Mark Carey, University of Oregon)	FAQ #1 is incorporated now and should provide a synthesis of the very good comments provided here.
349	38702	27	61	30	61	30	The year of the paper is 2010. (Olga Clorinda Penalba, Universidad de Buenos Aires)	Yes, it is 2010.
350	47600	27	64	51	64	54	In the Chapter 27 - AGAIN. This reference is incorrect... The correct reference is - NOBRE, C. A.; YOUNG, A. F. ; SALDIVA, P.H.; MARENGO, J.A; NOBRE, A. D.; OGURA, A.; THOMAZ, O.; PARRAGA, G. O. O.; SILVA, G.C.M.da; VALVERDE, M.; SILVA, G.; SILVEIRA, A.C.; RODRIGUES, G. de O. (2011). Vulnerabilidade das Megacidades Brasileiras às Mudanças Climáticas: Região Metropolitana de São Paulo. Relatório Final (Final Report). Editores Carlos A. Nobre e Andrea F. Young. INPE, UNICAMP. USP, IPT. São Paulo, Brasil, 178 pp. (Andrea Young, State University of Campinas - UNICAMP)	Reference added.
351	39326	27	70	45	70	45	published, DOI: 10.1007/s10584-012-0504-7 (Maria Assuncao Silva Dias, University of Sao Paulo)	Yes, reference added.
352	51732	27	76	0	0	0	Table 27-1. The author team might consider adding a brief additional column to indicate the parameter being characterized in the 3rd column, as a quick reference for the reader. Additionally, as a minor point, in the table caption, it may be beneficial to refer explicitly to table 3-2 and potentially also 3-1 from the special report. (Katharine Mach, IPCC WGII TSU)	We see no need to do that, the content of the table has all information needed, including the variable considered.
353	38703	27	76	0	76	0	Table 27-1 Region CA and Nothern SA: the paper Englehart and Douglas analyze stations located in Mexico and Arizona. This region is ou of CA. This paper does not corresponde to this region. (Olga Clorinda Penalba, Universidad de Buenos Aires)	The reference has been dropped.
354	54014	27	76	0	82	0	Table 27-1&2: "region" as a header of the first column is inaccurate. A separate column for region should be added or header name should be changed. (Yuka Estrada, IPCC WGII TSU)	We have not added a new column for that, we believe that this will make the table too wide.
355	38704	27	77	0	77	0	Table 27-1 . Region SESA. La Plata Basin: increase in the frequency of extreme daily rainfall (percentile 75th) during summer, autumn and spring. In winter, the frequency of extreme daily rainfall decreases by up to 60%, in the lower Río Paraná basin. Period: 1950-2000. Penalba and Robledo, 2010. Reference: Penalba O.C., Robledo F.; 2010, Spatial and temporal variability of the frequency of extreme daily rainfall regime in the La Plata Basin during the 20th century. Climatic Change (DOI 10.1007/s10584-009-9743-7) Volume 98, Issue 3, 531-550. (Olga Clorinda Penalba, Universidad de Buenos Aires)	We have included the reference.
356	38705	27	77	0	77	0	Most of the stations in Argentina exhibited a decrease trends in the annual number of dry days. Period 1960-2005. Rivera Rivera, J.A., Penalba, O.C., Bettolli, M.L., 2012. Intern-annual and inter-decadal variability of dry days in Argentina. International Journal of Climatology. Acceptedo 25 Feb 2012. Print ISSN: 0899-8418. (This comment corresponds to Table 27-1: Region SESA. (Olga Clorinda Penalba, Universidad de Buenos Aires)	We have included the reference.
357	40238	27	77	0	77	0	bottom of the table: change Espinoza et al. (2009, 2009) by Espinoza et al (2009a). (Josyane Ronchail, LOCEAN - Laboratory of Oceanography and Climate)	This related to formatting issues only that has been resolved in the SOD.
358	51733	27	79	0	0	0	Table 27-2. For the 3rd sentence of the caption, it may be helpful to clarify that information for this scenario and time slice are provided *where available*? Within the table itself, it would be helpful to indicate what the acronym LAI stands for. Additionally, it could be helpful to further specify the column heading for the 3rd column: "Projected changes by 2100 (unless otherwise specified)" for example. Finally, the author team could consider referring specifically to table 3-3 from the special report on extremes. (Katharine Mach, IPCC WGII TSU)	We have done as proposed by the reviewer.
359	51734	27	83	0	0	0	Table 27-3. It would be helpful to specify what the acronyms ELA and LIA stand for. (Katharine Mach, IPCC WGII TSU)	Both acronyms have been described the first time they appear in the table.
360	51735	27	85	0	0	0	For the 1st box in the 3rd column, it would be helpful to specify if the trends evaluated for significance were actually sinusoidal curves? Additionally, the 8th box down in the same column should be completed. (Katharine Mach, IPCC WGII TSU)	Linear trends were tested. The pattern looks sinusoidal. Box has been filed with information.
361	51736	27	87	0	0	0	Table 27-4. For all entries in the 3rd column, it is important that the author team clarify in each case what variable or parameter is actually being presented. (Katharine Mach, IPCC WGII TSU)	The table has been modified to make this clearer.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
362	54015	27	89	0	0	0	Table 27-6: Only a small handful of cells have values under temperature and rainfall. Unless the empty cells are mostly expected to be filled, those two columns should be removed. Instead a note column should be added to include temperature and rainfall data for rows with those data available. Otherwise, the table looks empty. (Yuka Estrada, IPCC WGII TSU)	Variables were removed.
363	51737	27	90	0	0	0	Table 27-6. For the 5th column, it would be helpful to clarify if these are temperature-independent CO2 effects that are meant. (Katharine Mach, IPCC WGII TSU)	It was changed.
364	48454	27	90	0	91	0	Table 27-6. Comment: Data for Paraguay are under revision in ECLAC (in particular livestock). Specific document for Paraguay will be published in the coming months. Further information will be sent. (Carlos de Miguel, United Nations Economic Commission for Latin America and the Caribbean)	Livestock impacts were deleted.
365	51738	27	92	0	0	0	Table 27-7. The author team should introduce the variable presented in this table, TFC, to make it understandable to the reader. (Katharine Mach, IPCC WGII TSU)	Ok
366	37636	27	93	0	0	0	Fig 27-1: This is just a small detail: to be consistent with the title, shouldn't the deforestation rates be positive and reforestation be negative? (Hugo Hidalgo, Universidad de Costa Rica)	The figure has been completely revised with the help of the TSU.
367	51739	27	93	0	0	0	Figure 27-1. For the percentages given in the figure caption, the author team should clarify if these are percentages for each individual country or percentages of forest cover across all of the countries. (Katharine Mach, IPCC WGII TSU)	The text in the caption has been extended to clarify that the percentages are for each individual country.
368	54016	27	93	0	0	0	Figure 27-1: Observed rates could also be illustrated using two panel charts. (Yuka Estrada, IPCC WGII TSU)	The figure was revised following this recommendation.
369	54017	27	93	0	0	0	Figure 27-2: The visibility of this figure must be improved. (Yuka Estrada, IPCC WGII TSU)	This figure was also redone with the help of the TSU.
370	37637	27	94	0	0	0	Fig 27-3: Strange citation (Hugo Hidalgo, Universidad de Costa Rica)	This related to formatting issues only that has been resolved in the SOD.
371	51740	27	94	0	0	0	Figure 27-3. It would be helpful to clarify how poverty is defined in this figure. (Katharine Mach, IPCC WGII TSU)	The definition of poverty was added to the caption.
372	54018	27	94	0	0	0	Figure 27-3: Y-axis title must be provided. This chart may be easier to read if plotted as a bar chart. (Yuka Estrada, IPCC WGII TSU)	This figure was also redone with the help of the TSU.
373	37638	27	94	0	0	0	Fig 27-4: Small fonts (Hugo Hidalgo, Universidad de Costa Rica)	OK, done
374	51741	27	94	0	0	0	Figure 27-4. For each impact presented in this table, it would be very helpful to specify which have been observed and which are projected. (Katharine Mach, IPCC WGII TSU)	OK, the text was altered accordingly
375	54019	27	94	0	0	0	Figure 27-4: The visibility of this figure must be improved. The fonts are too small. Acronyms should be spelled out (CCW, CW, SLR etc). (Yuka Estrada, IPCC WGII TSU)	Ok Figure has been improved
376	43388	27	94	0	95	0	I like the synthesis figure 27.4 and 27.6, they provide a rapid and comprehensive overview of impacts and changes. I also consider Figure 27.5 important and would suggest to possibly include another such conceptual 'network' figure showing, for instance, the linkages in water resource systems (natural and human factors). (Christian Huggel, University of Zurich)	OK, the text was altered accordingly
377	37639	27	95	0	0	0	Fig 27-5: Boxes difficult to read (Hugo Hidalgo, Universidad de Costa Rica)	Boxes improved
378	54020	27	95	0	0	0	Figure 27-5: It would be useful to have further clarification, such as a brief description for different colored elements. From this figure, I was unable to capture "demanding more energy in general" as described in the caption. To make that point, the direction of arrows between "use of fossil fuels" and "other renewables" could be reversed and change wording to "increase use of fossil fuels" and "increase demand for other renewables." (Yuka Estrada, IPCC WGII TSU)	OK, the text was altered accordingly
379	37640	27	95	0	0	0	Fig 27-6: This needs a reference and the period of observation. Are only significant changes shown? Precip trends in CA are really not consistent (Hugo Hidalgo, Universidad de Costa Rica)	The background information for each of the different trends is found within the different sections of the chapter
380	51742	27	95	0	0	0	Figure 27-6. The author team has adopted an effective approach in summarizing material in this figure. It would be helpful to specify the overall timeframe for changes characterized here. (Katharine Mach, IPCC WGII TSU)	The background information for each of the different trends is found within the different sections of the chapter
381	54021	27	95	0	0	0	Figure 27-6: The orientation of each chart should be all vertical (change TA and CA-NSA). It would be helpful for readers if regional boundaries are drawn on the map. We could certainly provide graphical assistance to improve this figure. (Yuka Estrada, IPCC WGII TSU)	We have developed a new version of the map with assistance from TSU