#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	57485	9	0	0	0	0	The population number should be listed referenceing to Table 8-1. and the data of population in Chapter 9 should keep in line with that in Chaper 8. (Luliu Liu, National Cliamte Center, CMA)	This chapter has used the latest available UN Population Division figures (for 2011), whereas Ch.8 has been engaged in showing trends, using figures by decade, hence they used 2010 to create a series 1990/2000/2010/2020 etc.
2	57486	9	0	0	0	0	Better assess the case cited not list them simply. (Luliu Liu, National Cliamte Center, CMA)	We feel we have provided an additional element of assessment at several points in the FGD
3	58158	9	0	0	0	0	General Comments on Chapter 9. Rural Areas: The population in the rural areas is almost half of the population of the world (3.3 billion). The definition of the urban areas is changeable from country to another as indicated in page 5. Figures 9-1 for the Trends in rural, urban and total populations by region and Figure 9-2 for the Demographic and poverity indicators for rural areas of developing countries in page 73 are impressive. Key vulnerabilities and risks in page 22 was explained in a professional way. Tables 9-6 and 9-7 for the exaples of adaptation in the agriculture and water sectors in different regions are impressive (pages 71 & 72). (Mounir Wahba Labib, Third National Communication (TNC) Project)	Thank you for these supportive comments
4	59445	9	0	0	0	0	The chapter is too focused on agricultural issues. Although agriculture is important for rural areas, other sectors, e.g. tourism, or ecosystem functions seem to be 'underestimated'. In addition, mountain areas, which constitute nearly a quarter of the world's land surface and a much larger proportion of rural areas, should also be further discussed. In page 29, Section 9.3.5.3.2 there is a reference on the importance of mountain areas; nevertheless, the section is also oriented to agriculture. (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	An additional section on infrastructure (9.3.3.2) has been inserted in the FGD, and other important rural economic sectors such as mining and tourism are covered (at 9.3.4.2 and Box 9-2 respectively)
5	61202	9	0	0	0	0	Rural areas lack, as it is stated here, a clear definition. In my view, this causes the main weakness of this chapter (at least of the executive summary). A differentiation of what is meant by "rural areas" in different regions of the world would be particularly helpful in this chapter as their relative importance and contextual meaning links to very different kinds of problems to be faced as a consequence of climate change. In Europe, for example, there are "rural areas" and many of the findings of the chapter are hard to associate with them. For other parts of the world, the same problem can arise due to this lack of definition and focus. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	National definitions of "rural" do not necessarily follow regional patterns (see Table 9-1). We present a rationale for focussing mainly on rural areas in developing countries, where 90% of the world's rural population live, but feel we have provided critical assessment of major isues in rural areas of developed countries, including Europe
6	61203	9	0	0	0	0	I would say that a common differential element of rural areas is their higher dependency on vulnerable resources (freshwater and their sources, agriculture and livestock garzing, soils, etc), the features of the rural built environment (in parts of the World they are weaker and/or more exposed to external events, there are fewer infrastructures providing certain resilience, etc), different societal structures and the variety of governance systems. Maybe these common elements should have been the foundations for this chapter. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The relative dependency on natural resources is used as a "key starting point" in Section 9.1.1, and the theme of social structures (through local institutions, gender etc.) and governance is included passim. We did not find sufficient reference to the rural built environment to make it a structural element in the chapter
7	62789	9	0	0	0	0	Please consider including discussion on the impact of climate change on fire (wildfire) risks. Reference: http://www.esajournals.org/doi/abs/10.1890/ES11-00345.1 (Sai-ming Lee, Hong Kong Observatory)	Coverage of fire was improved in the FGD, especially in Section 9.4.3.3. We did not use the specific reference offered as it is more a study of projected fire prevalence as a biophysicial phenomenon, with little consideration of downstream impacts

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
8	68089	9	0	0	0	0	China is a large agricultural country with a large rural population. This chapter, however, gives limited information on studies of rural China from the perspective of climate change impact, vulnerability and risk. It is suggested to add information on impacts by climate change on farmers' livelihoods, poverty, farming and animal husbandry as well as on policies and measures for climate change adaptation including disaster risk management and land use in China. References: Second National (China) Assessment Report on Climate Change (Science Press, 2011) Qin Dahe et al, The Evolving Climate and Environment in China:2012 (Meteorological Press, 2012) Xu Yin long, Ju Hui, Climate Change and Poverty: A Case Study of China[R]. Greenpeace, Oxfam. 2009. Wang X. Y, Zhang Q, (2012) Climate variability, change of land use and vulnerability in pastoral society: a case from Inner Mongolia, Nomadic Peoples, Vol 16, No1. Long, H., Y. Li, Y. Liu, M. Woods, and J. Zou, 2012: Accelerated restructuring in rural China fueled by 'increasing vs. decreasing balance' land-use policy for dealing with hollowed villages. Land Use Policy, 29(1), 11-22. "Atkin, M L Clarke, S J Mooney, B Wu, H M West, (2013) Responses to climate change and farming policies by rural communities in northern China: A report on field observation and farmers' perception in dryland north Shaanxi and Ningxia, Land Use Policy, 32,125-133". (CHINA)	Coverage of China was improved in the FGD with China-specific references including Lin et al. 2005, Simelton et al. 2009, and Xu et al. 2008
9	68090	9	0	0	0	0	The uncertainty and confidence are expressed in this chapter somewhat differently from IPCC's Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties (6-7 July 2010). It is suggested to reformulate such expressions according to the IPCC's Guidance Note. (CHINA)	One of the goals in the FGD was to produce a document that confirmed with IPCC guidelines in all respects
10	69056	9	0	0	0	0	Please thoroughly check the reference list, as well as the referencing in the text to this list. Many references are still lacking or inaccurately referred to. (NETHERLANDS)	We have a made a major effort to avoid such problems in the FGD
11	72928	9	0	0	0	0	The majority of the chapter seemed focused on developing country rural areas, the authors might consider breaking the chapter into two sub-chapters. One section focused on developed country rural areas and climate change with the second section focused on developing country rural areas and climate change. There is a marked difference in these two rural areas, and the responses to climate change might be markedly different as well. Developed countries have more "resources" to be able to adapt whereas more developing country residents may suffer without any form of safety nets. The vague term "rural areas" is too broad to cover all countries. The US or Australia rural areas are very different than Pakistan or China, both merit equal investigation in an IPCC "rural areas" chapter. (UNITED STATES OF AMERICA)	It would not have been practical to adopt the structure suggested at FGD stage. The FGD has improved coverage of rural areas in developed countries, although we have followed our expressed strategy of focussing mainly on rural areas in developing countries, where 90% of the world's rural population live
12	72929	9	0	0	0	0	Given the close relationship between Chapters 7 & 9, this comment refers to both: Chapter 7 focuses on food production and there seems to be a slight amount of overlap between Chapter 7 and Chapter 9. The authors of both chapters (7 & 9) should collaborate to ensure that duplication is minimized and synergies are maximized. (UNITED STATES OF AMERICA)	We have collaborated with Ch.7 to avoid overlap in various areas, including non-food crops and agricultural trade and pricing
13	72930	9	0	0	0	0	Replace "non-market" with "extra-market" since what goes through markets depends on the legal and institutional context. (UNITED STATES OF AMERICA)	We agree with the general point but "non-market" is only used here to describe metrics of risks. "Non-marketed" is used of ecosystem services and we stand by this use.
14	72931	9	0	0	0	0	The chapter generally does a nice job of summarizing the major areas of literature on VIA in rural areas. However, there is a tendency in the chapter to emphasize rural areas of the developing world, with less attention devoted to rural areas of the developed world. Some sources for the U.S. include: Pankaj Lal & Janaki Alavalapati & Evan Mercer, 2011. Socio-economic impacts of climate change on rural United States. Mitigation and Adaptation Strategies for Global Change vol. 16(7), pages 819-844, October. and Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State Annals of the New York Academy of Sciences VL - 1244, IS - 1, PB - Blackwell Publishing Inc, SN - 1749-6632, UR - http://dx.doi.org/10.1111/j.1749-6632.2011.06331.x, DO - 10.1111/j.1749-6632.2011.06331.x, SP - 2, EP - 649, PY - 2011. (UNITED STATES OF AMERICA)	We have increased our coverage of developed country and US issues - with additional references such as Lal et al. as offered here, MacDonald 2010 on water, Lobell and Field 2012 on California agriculture - while maintaining our focus on rural areas in developing countries, where 90% of the world's rural population live,
15	72932	9	0	0	0	0	The title of this chapter doesn't completely reflect what the chapter covers, especially given the information reviewed in Chapter 7 (Food Systems & Security). It seems that this chapter would be better titled "Rural communities and livelihoods" instead of Rural Areas, because it lacks the extensive agricultural production information covered in Chapter 7. (UNITED STATES OF AMERICA)	As explained in our response to Comment 12 above, we have worked hard not to cover the same topics as Ch.7, but to complement their work. We feel the chapter goes well beyond "communities and livelihoods into e.g.infrastructure, trade, biophysical impact on non-food crops and other topics

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
16	72933	9	0	0	0	0	Throughout the chapter, there was a strong emphasis towards issues in tropical regions and developing nations. The northern parts of North America and Europe (as well as Southern South America) are all going to experience issues in their rural areas, as well. The chapter barely touched on issues with ice roads, northern villages, and arctic infrastructure. Indeed, there is more work on this than was cited andit should be referenced in this chapter. Further,in the research gaps/needs section, there should be a call for more of this research. (UNITED STATES OF AMERICA)	Some of the specific topics mentioned here are now covered on the new Section 9.3.3.2 on infrastructure. We have however maintained our focus mainly on rural areas in developing countries, where 90% of the world's rural population live,
17	72934	9	0	0	0	0	We suggest that when the chapter is published online, that it be linkable to everything it references, so readers can easily find the info they need. (UNITED STATES OF AMERICA)	This will be done during production of the final published version
18	77569	9	0	0	0	0	A listing of adaptation interventions across regions is missing (Malini Nair, Indian Institute of Science)	This is provided in the Technical Summary Section A.2. We did not feel it was possible or desirable to provide such a list in our chapter, but we provide plentiful cross-references to regional chapters in our adapatation sub-sections (9.4.3.1, 9.4.3.2, 9.4.3.3)
19	78323	9	0	0	0	0	Very good chapter despite the difficulty the authors must have faced in navigating between the situations in rural areas in low and high income countries. (Kees van der Geest, United Nations University)	Thank you
20	78324	9	0	0	0	0	At a global scale, rural and agricultural populations are very clearly concentrated in Sub-Saharan Africa and South Asia (and China). See the thematic world maps (based on FAO data) in Van der Geest, K. (2010). Rural Youth Employment in Developing Countries: A Global View. Rome: FAO. (PS no need to reference this publication, just an easy illustration of the global, geographic distribution of rural and agricultural people, see p. 11 and 13). http://www.fao-ilo.org/fileadmin/user_upload/fao_ilo/pdf/Vandergeest_2010_RurYouthEmpl_150_ppi.pdf When going through chapter 9, I had the impression that there was a tendency to try to represent geographical regions equally while more focus on the regions in which most people live in rural areas and have livelihoods that are more vulnerable to climate threats is justified. (Kees van der Geest, United Nations University)	We have tried to strike a difficult balance, given length constraints, between focusing on rural areas in developing countries, where over 90% of the world's rural people live, and ensuring representation of diferent regions. The author team feel the weighting of examples and issues is appropriate
21	79517	9	0	0	0	0	This chapter would have benefited from an initial conceptual model, set out in a graphical representation. The authors mention the sustainable livelihoods framework, which would have been useful. It would also have been useful to set out a taxonomy of rural area types - especially between commercial farming dominated systems in rich countries and the mix of commercial / non commercial large and small farm systems in many developing countries. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	We did consider these options but could not find a conceptual graphic that would add value to the chapter. We did use a distinction between developed and developing countries as a key conceptual device, particularly in Section 9.3.1 and Table 9-3. Beyond this, we felt the range of rural area types could be discussed as it arose in the context of impacts and especially vulnerability (see 9.3.5.1.2)
22	79518	9	0	0	0	0	There is surprisingly more literature quoted about rural areas in developing countries and much less about rural areas in rich countries. I am not sure that this reflects the literature. This ends up with giving the impression that impacts will be larger in the rural areas in developing countries than in those of the rich countries, which would not necessarily be true. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	We have give additional emphasis to our considered decsion to focus mainly on rural areas of developing countries, as this is where 90% of the world rural population live
23	80992	9	0	0	0	0	Author team should ensure that caliberated uncertainty language is used only to make probabilistic statements. (Monalisa Chatterjee, IPCC WGII TSU)	We have tried carefully to do this
24	81037	9	0	0	0	0	There are some missing/ incorrect citations in the chapter. These discrepancies have been highlighted in the ref check document for chapter 9 and is available in the supporting material web page. Chapter team may wish to rectify these errors before starting to work on SOD revisions and FGD preparation. (Monalisa Chatterjee, IPCC WGII TSU)	We have tried carefully to resolve all citation issues
25	82343	9	0	0	0	0	1) Overall -- The chapter team has developed a very robust second-order draft. In the final draft, the chapter team is encouraged to continue its prioritization of clear writing, compacted rigorous assessment, high specificity in examples, and attention to the intricacies of information available. (Katharine Mach, IPCC WGII TSU)	We have tried to follow these suggestions
26	82344	9	0	0	0	0	2) Further shortening and tightening assessment -- The chapter team is encouraged to make each section as compact and accessible as possible, through rigorous polishing and editing. For example, the chapter could be strengthened through careful editing of each section, retaining core content while reducing text in the body of the chapter by 25%. (Katharine Mach, IPCC WGII TSU)	We have substantially reduced chapter length

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
27	82345	9	0	0	0	0	3) Coordination across Working Group II -- In developing the final draft of the chapter, the author team should continue to ensure coordinated assessment, both in the chapter text and at the level of key findings. As appropriate, cross-references to the sections of other chapters and/or their assessment findings should be used, continuing to ensure that overlaps are reduced and assessment harmonized. (Katharine Mach, IPCC WGII TSU)	We have considerably increased cross-referencing to other chapters, including 7, 13, the adaptation chapters and the regional chapters
28	82346	9	0	0	0	0	4) Harmonization with the Working Group I contribution to the AR5 -- In developing the final draft, the chapter team should also ensure all cross references to the Working Group I contribution are updated, with discussion of climate, climate change, and climate extremes referencing the assessment findings in that volume. (Katharine Mach, IPCC WGII TSU)	WG1 Is now explicitly discussed and cited in Section 9.3.2
29	82347	9	0	0	0	0	5) Report release -- The chapter team should be aware that the final drafts of the chapters will be posted publicly at the time of the SPM approval, before final copyediting has occurred. Thus, the chapter team is encouraged to continue its careful attention to refined syntax and perfected referencing. (Katharine Mach, IPCC WGII TSU)	We have borne this advice in mind
30	82348	9	0	0	0	0	6) Figures -- If reviewers of the chapter identify figures that would illustrate and clarify assessment within the chapter, the author team is very much encouraged to consider including additional figures. (Katharine Mach, IPCC WGII TSU)	We gave serious consideration to additional figures but could not identify options that would add value to the chapter
31	82349	9	0	0	0	0	7) Characterization of future risks -- In characterizing future risks for rural areas, to the degree appropriate the chapter team should indicate the extent to which risks (or key risks) can be reduced through mitigation, adaptation, development, poverty reduction, etc. That is, is it possible to indicate how risks may increase as the level of climate change increases or, potentially, to indicate the relative importance of changes in mean conditions, as compared to changes in extreme events, as compared to potential non-linear changes associated with biome shifts or tipping points? And then, how much can risks be reduced through adaptation or development, in the near-term and in the long-term? How are factors or stressors that multiply risks relevant in this context? As supported by its assessment of the literature, the author team should consider communicating risks for the era of climate responsibility (the next few decades, for which projected temperatures do not vary substantially across socio-economic/climate scenarios) and for the era of climate options (the 2nd half of the 21st century and beyond). As might be helpful to the chapter, the framing of table SPM.4 could be considered in characterization of future risks, along with the key and emergent risk typology of chapter 19. (Katharine Mach, IPCC WGII TSU)	We considered these suggestions, but generally felt that the sorts of risk documented for rural areas, and the complex context of vulnerability around them, had been mainly expressed in qualitative terms and were not easily conveyed within these parameters. For example, risks to pastoralists and artisanal fisherfolk need to be seen in the context that the way these communities might survive into the second half of the 21st century is extremely uncertain because of non-climate factors. This also made a presentation of risk management options in terms of adapataion/mitigation/development difficult, especually given length constraints
32	82350	9	0	0	0	0	8) Informing the summary products -- To support robust and insightful summary products for the report, the chapter team is encouraged to maximize nuance and traceability in its key findings, continuing to use calibrated uncertainty language effectively. In addition to nuanced characterizations of future risks (see the previous comment), the chapter team is encouraged to consider themes emerging across chapters, indicating for example how extreme events have demonstrated adaptation deficits and vulnerabilities to date and may relate to future risks, how limits to adaptation may be relevant in the context of this chapter, how multidimensional inequality is relevant in the context of climate change, how adaptation experience has been seen to date, and how interactions among mitigation, adaptation, and sustainable development may occur. (Katharine Mach, IPCC WGII TSU)	We have increased our engagement with emerging cross-chapter themes, in particular on multi-dimensional inequality, adaptation experience and secondary impacts of climate policy
33	84724	9	0	0	0	0	GENERAL COMMENTS: I congratulate the author team for all their work on an interesting and informative SOD. Please see my detailed comments for suggestions related to specificity of ES findings and traceable accounts, refining figures and tables, calibrated uncertainty language, and various specific clarifications. I have one general comment. The chapter text would benefit from an edit aimed at tightening and focusing the discussions even further. When considering the suite of review comments, please look for opportunities to hone the text in revision. (Michael Mastrandrea, IPCC WGII TSU)	We have attempted to follow-up these suggestions
34	84725	9	0	0	0	0	SUMMARY PRODUCTS: In preparing the final draft of your chapter and particularly your executive summary, please consider the ways in which your chapter material has been incorporated into the draft SPM and TS. For Chapter 9, this includes presentation of observed impacts and vulnerabilities in section A.i and Box SPM.3/TS.4, adaptation experience in section A.ii, sectoral risks in section C.i, and adaptation/mitigation/impacts interactions in section D.ii. Are there opportunities for presenting chapter findings and material in a way that further supports broad themes highlighted in the summary products and that facilitates additional cross-chapter synthesis in specific findings or figures/tables? Do the existing summary product drafts suggest additional coordination that should occur between Chapter 9 and other chapters at LAM4? (Michael Mastrandrea, IPCC WGII TSU)	The Chapter representataives on the SPM and TS author teams have tried to highlight specific findings from this chapter and cross-chapter themes to which this chapter contributes

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
35	63235	9	1	1	64	54	Since malaria is mentioned in chapter 8, it should also be included in chapter 9, or removed from both chapters (Torleif Markussen Lunde, University of Bergen)	We respectfully disagree with the logic of this comment. Ch.8 chose to mention malaria. Ch.9 took a considered decision not to cover health impacts for reasons of space and because they are covered in Ch.11 - this includes malaria
36	80978	9	2	0	2	0	Author team may wish to add a climate related ES. (Monalisa Chatterjee, IPCC WGII TSU)	An ES paragraph containing an an overall statement on observed climate change or instances of climate variability was considered but ultimately rejected, given our emphasis on causal chains of impact, the higher links of which are better covered in other chapters such as 7
37	61204	9	2	21	3	50	There is some reiteration and insistence on certain concepts , ideas and findings along the summary. However, their importnace is not well explained. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We hope the thoroughly redrafted ES is now clearer
38	80975	9	2	23	2	24	It seems like this finding is based on two sources, perhaps more references should be added in section 9.1.1. (Monalisa Chatterjee, IPCC WGII TSU)	The statistic on hunger has been dropped as not well-sourced, but an additional reference (IFAD) has been added for the proportion of poor people who are rural
39	82351	9	2	23	2	24	This statement should be coordinated with the assessment findings of chapters 9 and 13. (Katharine Mach, IPCC WGII TSU)	Following discussions with one of the CLAs of Ch.8, we deleted the reference to hunger, as not well sourced, and chose to slightly modify the ES statement on poverty, while providing more detail and an additional citation and more up-to-date citation in the text. Measuring and comparing poverty levels across the rural-urban divide is difficult and we chose for brevity to do our own assessment of the sources
40	72935	9	2	23	2	25	A clear definition of "rural" should be provided; can acknowledge that varied definitions exist, but one consistent approach needs to exist for this report. (UNITED STATES OF AMERICA)	In practical terms we need to deal with data from national sources that use various definitions, and analytically the ill-defined nature of the rural is central. The approach we have adopted has been clarified in a re-drafted section 9.1.2
41	80976	9	2	24	2	25	This sentence seems a little odd after the first sentence that gives the percentage of rural population. (Monalisa Chatterjee, IPCC WGII TSU)	This seems unavoidable, but is explained in the main text
42	61205	9	2	28	2	28	a lack of focus on rural areas in policy making ...' I would also add 'with a widespread intensification of productive land uses and policies generally promoting agri-business interests (including through undermining small holder tenure security) at the expense of other ecosystem services (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We had limited space (essentially only Table 9-3) to discuss current non-climate trends. Shifts to commercial agriculture and land acquisition are mentioned in Table 9-3
43	84726	9	2	28	2	29	This last statement of the paragraph does not appear in section 9.2. Please provide line of sight. (Michael Mastrandrea, IPCC WGII TSU)	This sentence has now been removed
44	72936	9	2	32	2	33	While the rural proportion of the population may be leveling off, the total rural population may still be increasing. Clarify whether the total rural population will still be increasing and where this is expected to happen. (UNITED STATES OF AMERICA)	This has been addressed by addition of the word "absolute"
45	61206	9	2	34	2	34	Poverty rates in rural areas are [suggest to insert ' much higher but'] falling more sharply ...' (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This has been addressed (but we have used "higher" rather than "much higher")
46	80977	9	2	34	2	36	This sentence is a little confusing. It seems to say that less number of people in rural areas are poor. Please clarify. (Monalisa Chatterjee, IPCC WGII TSU)	This has been addressed and is hopefully now clearer
47	84727	9	2	38	2	40	Are the mentioned signs of improvement in underinvestment in agriculture evident in certain regions, or everywhere? This is unclear from the chapter text and should be clarified here and/or in the chapter text if retained. (Michael Mastrandrea, IPCC WGII TSU)	This applies, in different ways to both developing and eveloped countries - see Table 9-3
48	84728	9	2	40	2	40	Is it necessary in the author team's opinion to assign both high and very high confidence to this statement? Does this mean confidence is between the two categories? Please consider whether additional gradations of the confidence scale are necessary. (Michael Mastrandrea, IPCC WGII TSU)	This has been revised to "very high" only

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
49	69057	9	2	41	2	41	Add the reference [Table 9-2]to the line, like '…in South Asia and Sub-Saharan Africa[Table 9-2]. ' (NETHERLANDS)	This sentence has been deleted. The correct table reference stands at the end of the whole paragraph
50	69058	9	2	45	2	45	The real reference for the text '…investment-based policy' is based on [Table 9-2] (NETHERLANDS)	Corrected (now 9-3)
51	84729	9	2	45	2	45	This should be Table 9-2 rather than 9-1. (Michael Mastrandrea, IPCC WGII TSU)	Corrected (now 9-3)
52	82352	9	2	47	2	48	In the summary for policymakers, the chapter team added "remoteness from decision-makers" to this list. Should it be included here? (Katharine Mach, IPCC WGII TSU)	This paragraph has now been throroughly redrafted. The remoteness issue is conveyed in different language in the FGD ES and in specific contexts in section 9.3.5.1 and 9.3.5.2.1
53	84730	9	2	47	2	48	The reference to section 9.4.4 for the bold sentence is unclear, as these topics are not addressed in that section. Please provide line of sight. In addition, "remoteness from decisionmakers" was included in a similar statement in the SPM. Please consider adding it here. (Michael Mastrandrea, IPCC WGII TSU)	This paragraph has now been throroughly redrafted. The remoteness issue is conveyed in different language in the FGD ES and in specific contexts in section 9.3.5.1 and 9.3.5.2.1
54	61209	9	2	47	2	50	Yes agreed - some comment here on the need for ecosystem-based adaptation and therefore improved NR governance and integrated site and landscape level management strategies (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This issue has now been addressed in FGD Section 9.5.2, para 2
55	61207	9	2	47	3	2	Gender is mentioned twice as related to vulnerability; other parts of the paragraph seem duplicative. This paragraph deals mostly with factors creating differential (additional?) vulnerability but it does not follow a general paragraph on primary vulnerability factors. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The paragraph has been redrafted and now only refers to gender once. We feel the general discussion of the nature of vulnerability is appropriate for the text (9.3.5.1) but not for the ES
56	61208	9	2	47	3	2	The drafting of this paragraph is confusing. Resilience, vulnerability, adverse impacts etc. Are they linked to climate change? (vulnerability to climate change, impacts of climate change, resilience facing climate change….) or to multiple factors?? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	With respect, we feel the paragraph is clear. The use of "climate change" in the bold text shows that "vulnerability" and "resilience" are used in relation to climate change. Non-climate factors contribute to vulnerability or resilience
57	69059	9	2	48	2	48	The reference for the text '….vulnerabilities to climate change' is based on [9.5.1] (NETHERLANDS)	9.5.1 has been completely rewritten. The various subsections of 9.3.5 are a better cross-reference for this paragraph
58	82353	9	2	49	2	49	Given the uncertainties guidance for authors, it may be clearest to use a summary term for agreement here more explicitly, with "low agreement" in italics. Additionally, the chapter team should consider providing a summary term for evidence as well. (Katharine Mach, IPCC WGII TSU)	"Low agreement" has been italicised. Including evidence terms for the range of different debates summarised here would be too complex
59	72937	9	2	49	2	51	Please state which factors are associated with increasing resilience and which with increasing vulnerability. (UNITED STATES OF AMERICA)	In the second sentence, the lack of agreement on this is precisely the issue. The third sentence gives examples where the association of a factor with either vulnerability or resilience is clearer
60	82354	9	2	51	2	51	Given the uncertainties guidance for authors, it would be clearest to present a summary term for agreement here, and potentially for evidence as well, in place of "greater agreement." (Katharine Mach, IPCC WGII TSU)	This has now been changed to "high agreement"
61	84731	9	2	51	3	2	Please carefully check the line of sight provided here, as most are incorrect (I assume as a result of reorganization of chapter text). Integration into world markets should be 9.3.5.2.2, access to land and natural resources should be 9.3.5.2.3, flexible local institutions should be 9.3.5.2.3, knowledge and information should be 9.3.5.2.6, and gender inequality should be 9.3.5.2.5. Finally, 9.3.5.3 should be added to support the last sentence of the paragraph. (Michael Mastrandrea, IPCC WGII TSU)	All lines of sight have now been corrected
62	69060	9	2	54	2	54	'mountain farming system' was not specifically addressed in the mentioned reference, please add [9.3.5.3.2] (NETHERLANDS)	The three ecological niche areas are jointly referenced as 9.3.5.2
63	61210	9	3	4	3	7	A chapter about rural areas should mostly focus on impacts on rural societies, rather than repeating statements on impacts on systems/resources (glaciers, droughts etc.). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This paragraph has now been redrafted to make the focus on human impacts clearer

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
64	84732	9	3	4	3	7	This statement needs further clarification, as currently it is mixing information about changes in mean conditions, climate variability/extreme events, and the influence of climate change on patterns of extremes. Section 9.3.2 makes it clear that this is what is meant by "extreme events and other categories," but this should be stated in the executive summary as well. Further, "attribution" is discussed in the context of climate change, so its juxtaposition here with evidence for observed impacts of both climate change and climate variability is confusing. It would be clearer to focus on what can be said about attribution observed impacts of climate change, also presenting the recognition that literature often does not distinguish between climate change and climate variability clearly, complicating attribution. (Michael Mastrandrea, IPCC WGII TSU)	The paragraph has been rewritten and expanded, and in conjunction with 9.3.2 is now clear
65	82355	9	3	6	3	6	The list of impacts attributed to climate change could benefit from further distinction. Some of the impacts relevant in rural areas have been attributed to climate change, as mentioned, but physical impacts included in the list in terms of extreme events, in the working group 1 contribution, have in some cases been attributed to anthropogenic climate change. The list of impacts here could potentially distinguish further between climate changes and physical changes relevant to rural areas, which have in some cases been attributed to anthropogenic climate change, from "downstream" impacts on human and natural systems for which attribution, when available, is to climate change instead. (Katharine Mach, IPCC WGII TSU)	The paragraph has been rewritten and expanded, and in conjunction with 9.3.2 is now clear
66	69061	9	3	6	3	7	Please add the reference [9.5.1] (NETHERLANDS)	9.5.1 as the conclusion (which has now in fact been rewritten) would not be an appropriate reference
67	84733	9	3	6	3	7	As one smaller follow-on comment, in the nonbold sentence it is not clear what is meant by "extreme events such as droughts and storms" being impacts attributable to climate change. Do you mean changes in patterns of these extremes? Please also ensure consistency with WGI when talking specifically about changes in the physical climate. (Michael Mastrandrea, IPCC WGII TSU)	The paragrpah has been rewritten to be clearer and the main text unpacks this statement and makes it clearer only changes in patterns are attributed to climate change
68	61211	9	3	7	3	7	should refer to growing and in many dryland areas acute water stress (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	In the space available and given the difficulties of attribution we chose not to include water stress issues directly in 9.3.2
69	82356	9	3	14	3	15	For the summary for policymakers, the chapter team suggested revised wording for this finding, which can be found on page 11, lines 45-46, of the summary for policymakers. The improved wording should be considered here as well. (Katharine Mach, IPCC WGII TSU)	The paragraph has been rewritten
70	80979	9	3	15	3	15	use of 'certain countries' is vague. Perhaps some names could be provided. (Monalisa Chatterjee, IPCC WGII TSU)	Naming selected countries would not be appropriate for the ES. Language modified to "in many parts of the world"
71	61212	9	3	21	3	21	deepening agric. markets ...' yes price signals critical to increase production, but also social protection for food insecure essential - (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Safety nets are now mentioned in the underlying text (9.3.3.3.2) but we did not have sufficient confidence in the findings of available literature to elevate them to the ES
72	84734	9	3	21	3	23	Is there any information that can be communicated about the evolution of these impacts over time? Are these impacts expected over the next few decades as opposed to later in the century? (Michael Mastrandrea, IPCC WGII TSU)	The whole sentence has been deleted
73	82357	9	3	23	3	23	Following the uncertainties guidance for authors, it would be preferable to describe this level of agreement as "medium agreement" in italics. (Katharine Mach, IPCC WGII TSU)	This change has been made
74	84735	9	3	23	3	23	Per my previous comment on an earlier bullet, are both medium and high confidence needed here? Please consider whether further gradations of the confidence scale are necessary. (Michael Mastrandrea, IPCC WGII TSU)	Text now indicates "medium agreement" only
75	61213	9	3	23	3	29	Could add to this introduction a general statement that rural areas' economic transformation is accelerating, including through globalisation, and there are multiple stresses already livelihoods (tenure security & loss of commons / water stress / food security / biodiversity loss etc.). The character of the agrarian transformation is very different SE Asia / S Asia / Africa / L America - in E and SE Asia drastic agrarian tranformation and intensifying land use / land grabbing (see Rigg 2006 World Development) (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Within space limits these issues are explored in 9.3.1, but could not be fitted into the ES
76	82358	9	3	29	3	29	It would be much clearer in this finding to specify more specifically the "multiple factors" that are relevant. (Katharine Mach, IPCC WGII TSU)	Mention of these factors has now been expanded in the non-bold text

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
77	62622	9	3	29	3	32	it should also mention the govenmental facilitated migration in the " migratory descion making in individuals and households", such as Chinese case in Ningxia and other places. (Zhu Z, Zhang X. Theoretical Critical Value Curve and Driving Force Formation of Ecological Migration in the Arid Land[J]. Chinese Science Bulletin, 2006,51:196-203.) (yan zheng , Chinese Academy of Social Sciences (CASS))	We felt this was a specific illustration so not suitable for inclusion in the ES
78	69062	9	3	34	3	35	The conclusion seems to be unbalanced. Climate mitigation policies can also have positive impacts (NETHERLANDS)	The paragraph and supporting main text have now been redrafted with more balance between postive and negative impacts
79	61214	9	3	34	3	37	Yes the impacts of these measures critically depend on institutional design and implementation - experience so far either tokenistic or discouraging (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Implementation now specifically mentioned
80	67864	9	3	34	3	37	The sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts on land-use and on the livelihoods of poor and marginalized people." presents a very much different evaluation on REDD+ from TS of WG3 (page45); "The implementation of REDD mechanisms and its variations that can represent a very cost-effective option for mitigation with high social and other environmental co-benefits". The relevant text of the underlying report (paragraph 9.3.3.4) raises issues related to community participation etc. in the ongoing REDD+ pilot projects, however, the REDD+ framework itself should not be judged as "potentially detrimental" only by the results of those pilot projects that are being implemented and are still in the early stages and in general lack sufficient infrastructures, framework, governance and capacity. The reviews of projects in Chapter 9, 13 are not always the result of result-based projects with payments under REDD, and references don't always reflect the result of Decision1 of UNFCCC COP16 where safeguards for REDD+ were defined, which should be promoted and supported when undertaking REDD+ activities. (Further, contents in Chapter 13 show some positive results projects even in early stages.)There is not a sufficient basis for conclusion of medium confidence.Due to the above reasons, this sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts" should be deleted.But if some reference to (it any content) regarding climate policy is inevitable here, the sentence should be revised as follows; : "As climate polices, such as encouraging cultivation of biofuels, may result in mixed impacts on land-use and on the livelihoods of poor and marginalized people, the appropriate measures should be considered. " for aforementioned reason, also the contents in chapter 13 do not mean the climate polices, such as encouraging cultivation of biofuels and payments under REDD, always result in mixed impacts on land-use and on the livelihoods of poor and marginalized people. The policies might have detrimental impacts unless the appropriate policies are introduced. (JAPAN)	The paragraph and supporting main text have now been redrafted with more balance between postive and negative impacts
81	72938	9	3	34	3	37	The need for land for solar power generation (solar cell arrays and mirrors for concentrated solar) and wind farms is largely happening in rural areas, sometimes creating conflict with existing land management (e.g. wildlife conservation) policies or creating a secondary conflict over other natural resources like water (needed for washing solar cells or power generation at solar facilities). This is happening in many locations across the western U.S. and would also be useful to acknowledge here. (UNITED STATES OF AMERICA)	The paragraph and supporting main text have now been redrafted with more balance between postive and negative impacts
82	63558	9	3	37	3	37	"governance" is addressed but at no place described, what is meant by this in the context of rural development. (GERMANY)	The discussion of governance in the main text has been expanded
83	57664	9	3	39	3	39	significant > substantial (Richard S.J. Tol, Vrije Universiteit Amsterdam)	This change has been made
84	82359	9	3	39	3	39	It would be helpful here to specify what kind of "climate change impacts" are meant. That is, "monetized climate change impacts"? (Katharine Mach, IPCC WGII TSU)	"Impacts" are intended to be generic, the paragraph concerns various valuation methodologies
85	84736	9	3	39	3	41	Is there any information that can be communicated about the evolution of these impacts over time? Are these impacts expected over the next few decades as opposed to later in the century? (Michael Mastrandrea, IPCC WGII TSU)	The conclusion does not relate to impacts with a specific timescale, but to those discussed using valuation methodologies; specific details of timescale of impacts are mentioned in text
86	84737	9	3	42	3	42	Section 9.3.4.6 covers health. 9.3.4.5 may be intended here? (Michael Mastrandrea, IPCC WGII TSU)	The correct line of sight has now been inserted
87	69063	9	3	46	3	47	This statement is also conformed to the content provided on page 30, line 27-30, please add reference [9.4.1] to [9.4.3] (NETHERLANDS)	Correct lines of sight have now been inserted

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
88	69064	9	3	47	3	47	The issues of 'social capital' was not specifically discussed throughout the chapter except in 9.3.5.2; please quote the paper on the issues of social capital by Misselhorn (2009) (NETHERLANDS)	The terminology of "social capital" is now not used in the text or ES; "social" is used extensively in specific contexts - social system, social learning, social networks and so on.
89	82360	9	3	47	3	48	This statement would be clearer if the author team illustrated or indicated more specifically the ways in which these factors are key issues, instead of simply saying they are key issues. (Katharine Mach, IPCC WGII TSU)	The paragraph has now been expanded and clarified
90	84738	9	3	47	3	48	Gender and the role of social capital in building resilience are not really discussed in section 9.4. Please provide line of sight for their inclusion here. The supply of information for decisionmaking is discussed in 9.4.2 and 9.4.4 rather than 9.4.1. In addition, please clarify what is meant by "key" here--it may be more informative to explain what makes each important in this context. (Michael Mastrandrea, IPCC WGII TSU)	This sentence has been removed from the ES and Section 9.4 has been redrafted
91	61215	9	3	47	3	50	This statement is not clear. It provides a very general overview of items on factors and constraints that makes the full paragraph hardly comprehensible. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The paragraph has now been expanded and clarified
92	69065	9	3	48	3	48	Delete [9.4.1], add reference [9.3.5.2.5] [Box 9-2] to gender and [9.3.5.2.6] to supply of information (NETHERLANDS)	Lines of sight have now been corrected
93	72939	9	4	1	5	2	The introductory definition and discussion of rural in this section contains much repetition of the same statistics calculated in different ways and misses the opportunity to include discussion of how rural/urban populations break down by major world region. (Although this info is presented in figures and tables later in the chapter), the chapter should include a few sentences that summarize major conclusions/points that can be drawn from the tables such as share of rural population by major world region. (UNITED STATES OF AMERICA)	This section has been redafted and should now be clearer. IN view of page limits we did not feel we could repeat the geographical breakdowns form the tables and figures in the text
94	82361	9	4	5	4	15	These paragraphs should be coordinated with assessment in chapters 8 and 13. (Katharine Mach, IPCC WGII TSU)	As in Comment 39
95	80980	9	4	12	4	20	Authors may wish to coordinate with chapter 8 to ensure consistency regarding distribution of poor people. (Monalisa Chatterjee, IPCC WGII TSU)	As in Comment 39
96	62623	9	4	14	4	15	the reference (UNDP,2005) should be updated. (yan zheng , Chinese Academy of Social Sciences (CASS))	This reference, and the claim it supported, have been removed
97	72940	9	4	14	4	15	Numbers on rural proportion of poor and hungry are from old references; the authors should provide updated citations. (UNITED STATES OF AMERICA)	Additional reference to IFAD report (2005 data, analysed in 2010) added. Unfortunately there are no newer references that explicitly address this point
98	82362	9	4	22	4	32	It might be clearest to move this material to section 9.2. (Katharine Mach, IPCC WGII TSU)	Done
99	82363	9	4	36	4	47	These points are called "considerations," and it would be helpful to clarify further what is meant. Are they starting points for assessment in the chapter, rather than key findings? If they are not starting points but are instead key findings, traceability of the assessment should be ensured, with line-of-sight references provided and calibrated uncertainty language used. (Katharine Mach, IPCC WGII TSU)	Now clarified as starting points (with the exception of the last bullet point in the SOD, which was a finding but has been moved elsewhere)
100	82364	9	4	52	4	53	These lines are repetitive. (Katharine Mach, IPCC WGII TSU)	Repetition removed
101	57487	9	5	5	5	33	Better add the defination on "rural" by Chinese officials as below due to China is a agriculture country. "In China, "major urban areas" are defined as having a population of 10,000 and over; "medium urban areas" are defined as having a population of 3,000 to 9,999; "small urban areas" are defined as having a population of less than 3,000. "major villages" are defined as having a population of 1,000 to 3,000; "medium villages" are defined as having a population of 300 to 1,000; "small villages" are defined as having a population of less than 300. (Standard for Planning of Town and Village-GB50199-93)" (Luliu Liu, National Cliamte Center, CMA)	Chinese definition added

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
102	80294	9	5	5	5	33	In Nepal, rural and urban definitions have become synonyms as Village Development Committee (lowest level political unit) and municipality/metropolitan respectively. At present, there are 58 municipailites/metropolitans/sub-metropolitans. However, there is also a situation that many VDCs have been combining themselfves to become a municipality to meet criteria to become a municipality which practically is creating rural municipalities in the hills of Nepal. In terms of climate risk these municipalites are not, therefore, less vulnerable compared to rural areas. This kind of definitional problems linked to climatic problems could be the case in many other countries. Ubranisation in Nepal could be learned from - http://cbs.gov.np/wp-content/uploads/2012/Population/Monograph/Chapter%2010%20%20Urbanization%20and%20Development.pdf (Tek Gurung, Freelance consultant)	Thank you for your comment. Unfortunately page limits prevent us including more than a very small number of national definitions
103	80981	9	5	5	5	33	It is not clear how this section is connected to climate change. (Monalisa Chatterjee, IPCC WGII TSU)	Defining "rural" could not be avoided. Unfortunately there is no straightforward agreed definition - but we hope the rewrite has saved space
104	72941	9	5	19	0	0	"Global South" is an imprecise and politicized term that should be avoided. (UNITED STATES OF AMERICA)	This sentence has now been transferred to the Cross-Chapter Box on Urban-Rural Interactions. However, we have continued to use the term as part of a verbatim quote which adds to the discussion.
105	78232	9	5	29	0	0	While in Africa's most populous nation Nigeria, rural areas otherwise known as villages have population below 20,000 with greater proportion of old people and are characterized with lack of potable water, high dependence on agriculture, poor road network and communication facilities, no standardized markets, and belief in superstitions and taboos Alfred and Ewuola, 2010) [Dr. S. D. Y Alfred, Prof. S. O. Ewuola. Introduction to Rural Life. National Open University of Nigeria First Printed 2010, ISBN: 978-058-008-5] (Elochukwu Ezenekwe, Nnamdi Azikiwe University)	Thank you for your comment. Unfortunately page limits prevent us including more than a very small number of national definitions
106	72942	9	5	50	6	5	The discussion of disaster risk and adaptive capacity in this section seems somewhat out of the place is this section is supposed to be defining the peri-urban interface. (UNITED STATES OF AMERICA)	This section has now been transferred to the Cross-Chapter Box on Urban-Rural Interactions
107	80983	9	7	8	0	0	Section 9.3.2 Authors may wish to add some discussion on health impacts (Monalisa Chatterjee, IPCC WGII TSU)	In view of space constraints, the need to avoid duplication with Ch.11, and the Chapter 9 team's lack of comparative advantage in dealing with health issues, we decided not to include health impacts.
108	80982	9	7	23	7	26	Important take away point, perhaps make it more visible? (Monalisa Chatterjee, IPCC WGII TSU)	Considered, but as this is author's judgement rather than directly from literature, the passage has not been made more visible
109	82365	9	7	38	7	48	This statement should also reference the assessment findings of the working group 1 contribution to the 5th assessment report. (Katharine Mach, IPCC WGII TSU)	Done
110	82366	9	7	50	7	54	These sentences could additionally or alternatively cross-reference assessment in this report within chapters 3, 4, 7, 8, 10, etc. (Katharine Mach, IPCC WGII TSU)	Chapter 18 is now cross-referenced. Ch.7 cross-referenced below.
111	82367	9	8	9	8	14	The sentences should cross-reference key findings and relevant sections from chapter 7. (Katharine Mach, IPCC WGII TSU)	The Lobell paper already referenced is the key paper in the relavant section of Ch.7, but Ch.7 is now cross-referenced as well
112	79519	9	8	9	8	19	Observed impacts: this paragraph could usefully refer to the paper by Rao et al on the mis-attribution of decreasing crop yields in Kenya's Machakos district to climate change (K. P. C. RAO, W. G. NDEGWA, K. KIZITO and A. OYOO: CLIMATE VARIABILITY AND CHANGE: FARMER PERCEPTIONS AND UNDERSTANDING OF INTRA-SEASONAL VARIABILITY IN RAINFALL AND ASSOCIATED RISK IN SEMI-ARID KENYA. Expl Agric. (2011), volume 47 (2), pp. 267–291 C Cambridge University Press 2011 doi:10.1017/S0014479710000918 (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Reference gratefully accepted. Now used in first paragraph of 9.3.2
113	69066	9	8	11	8	11	What are the four major commodities? (NETHERLANDS)	The text is now modified so only maize and wheat are now mentioned
114	82368	9	8	21	8	27	These sentences should cross-reference key findings and relevant sections from chapters 3 and 28. (Katharine Mach, IPCC WGII TSU)	Ch.3 SOD said very liitle about glacier retreat. Cross-reference has been made to Ch.27

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
115	71313	9	8	25	0	27	Is this literature specific to Inuit or does it refer to all Northern populations (as other populations are also affected by sea ice)? (CANADA)	The specific references were to Inuit, but the point was more general and the text has been revised to reflect this
116	62624	9	8	29	9	37	For more information about regional migration cases on ： Asia Development Bank, Addressing Climate Change and Migration in Asia and the Pacific Mandaluyong City,Philippines: Asian Development Bank, 2012. (yan zheng , Chinese Academy of Social Sciences (CASS))	The reference has been incorporated
117	78325	9	8	40	18	2	The section on future impacts is often about observed impacts (Kees van der Geest, United Nations University)	Some passages relating more to observed impacts have been removed. We feel this is now better focussed on future impacts
118	72943	9	8	48	0	0	What is included in beverage crops -- just coffee, tea, and chocolate and not juices and wine principal raw materials? Why is chocolate included when it is predominantly not for beverage use? What about kola nuts? Please be thorough and address all beverage crops that are relevant. (UNITED STATES OF AMERICA)	"Beverage crops" is a standard term used by FAO and includes tea and cocoa, as well as coffee, and sometimes hops
119	80984	9	9	6	0	0	Section 9.3.3.1 Authors may wish to differentiate between agricultural and non agricultural livelihoods. (Monalisa Chatterjee, IPCC WGII TSU)	Done
120	72944	9	9	9	0	0	Rurral populations depend directly on agricultural production for subsistence or for sale, but as indicated in the section on peri-urban areas, rural populations are increasingly more dependent on non-agricultural income and the purchase of food products (Reardon et al 2007). Rising prices of food products as a result of climate extremes (see Ch 7 on Food security) would be a major factor leading to vulnerability in rural populations. Often agriculture serves as a way to buffer the risk of non-farm income sources, and therefore climate extremes can directly affect that buffer (See Lerner & Eakin 2011; Eakin, Lerner, Murtinho 2010). (UNITED STATES OF AMERICA)	These points have been accepted. Reardon, Lerner and Eakin, and a 2013 Lerner eta l rference have been used. Eakin et al. has been used in the Cross-Chapter Box on Urban-Rural Interactions
121	72945	9	9	13	0	0	It may be unlikely that private sector will provide micro-insurance for urban residents at any significant scale in the absence of donor or government subsidies. Are there any examples of climate-related micro-insurance outside of weather-indexed crop insurance in rural areas? If so, please provide examples. (UNITED STATES OF AMERICA)	We suspect this comment was intended for the urban chapter
122	62552	9	9	16	9	17	Section 5.3.3.3: The above statement " winds influence longshore current regimes and hence upwelling systems (……) is not relevant here. Upwelling can be remotely forced, not driven by longshore currents alone. (INDIA)	Comment intended for Ch.5
123	79520	9	9	21	9	39	Future impacts: this section could usefully consider work by John Antle and colleagues on the differential impacts of cc on heterogeneous rural communities: Claessens, L., J.M. Antle, J.J. Stoorvogel, R.O. Valdivia, P.K. Thornton, and M. Herrero. 2010. A minimum-data approach for agricultural system level assessment of climate change adaptation strategies in resource-poor countries. Agricultural Systems, submitted; Antle, J.M. and S.M. Capalbo 2010. "Adaptation of Agricultural and Food Systems to Climate Change: An Economic and Policy Perspective." Applied Economic Perspectives and Policy 32:386-416 (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The Claessens reference (title and date slightly different from those offered) has been used, but in the previous paragraph
124	72946	9	9	35	9	46	2007-8-9 references are a bit old when looking at local effects in climate models. Also, the text does not reflect contradictory projections at local level from different climate change models. (UNITED STATES OF AMERICA)	References now more up-to-date overall
125	82369	9	9	35	10	8	These statements could cross-reference key findings and relevant material from Chapter 3. (Katharine Mach, IPCC WGII TSU)	Section 9.3.3.1 has been re-drafted. A separate sub-section on water is included; ch 3 is cross-referenced
126	69067	9	9	36	9	37	What are the references for the statement 'most of the climate change models predict a reduction in freshwater availability by 2050', the text was found to be totally copied from the original work by Juana et al. (2008) (NETHERLANDS)	The verbatim quote has been removed
127	72947	9	10	2	11	12	It is not clear that the ABD study focuses on rural areas of the four countries mentioned. Authors should confirm that all studies cited look at rural areas. The agricultural discussion needs emphasize how the impacts discussed on different crops specifically affect rural households/livelihoods/economies. Rather than summarizing general agricultural yield findings (which are already provided in the agricultural chapter), the section should focus on studies that show how declining/changing yields affect rural livelihoods. (UNITED STATES OF AMERICA)	This reference has now been removed. References throughout the chapter have been checked to confirm that they are relevant to rural areas

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
128	72948	9	10	16	10	19	Another good citation for this section would be... MacDonald, Glen M. "Water, Climate Change, and Sustainability in the Southwest." Proceedings of the National Academy of Sciences 107, no. 50 (December 14, 2010): 21256-21262. doi:10.1073/pnas.0909651107. He makes the point of the current and increasing challenges of meeting water demands across the SW United States. One particular trajectory to meet the increasing demands of urban population centers is retiring agricultural waters rights and transferring them to urban use. This would directly impact rural agricultural centers across the region. (UNITED STATES OF AMERICA)	The reference has been incorporated within space constraints
129	72949	9	10	21	10	39	For balance, this needs to discuss positive effects of climate change on crop yields in some locations. (UNITED STATES OF AMERICA)	This is now discussed in the 3rd paragraph of 9.3.3.1.1
130	82370	9	10	51	10	51	If "likely" here is a calibrated likelihood term, it should be italicized. Casual usage should be avoided. In a quick pass through the Easterling chapter I was not finding the exact statement; otherwise, I would be more specific in suggesting italicizing or deleting the word. (Katharine Mach, IPCC WGII TSU)	"Likely" has been deleted
131	82371	9	10	54	11	1	The timeframe for this projection should be specified, in terms of the baseline for the projection and the projection itself. (Katharine Mach, IPCC WGII TSU)	The projection date has been specified. The baseline date is unclear in the original, and can be assumed to be the date of publication
132	80985	9	11	4	11	6	Reduced water supply may have implications beyond agriculture, e.g, water collection timing, impact on women. Author team may wish to add these. (Monalisa Chatterjee, IPCC WGII TSU)	The comment is not in fact applicable here, but Section 9.3.2.1.2 has been added on water, and mentions the multiple water crises and impacts on development of rural communities
133	57756	9	11	6	11	7	a more recent reference for fruits and nuts is Lobell, D., & Field, C. (2012). California perennial crops in a changing climate. Climatic Change, 109, 317-333 (David Lobell, Stanford University)	This has been used - thank you
134	79521	9	11	19	0	0	Box 1: careful with the story on coffee: mix of quality in the references used here. One of them is actually a report to the UK embassy in Rio de Janeiro - not sure about peer review status of this. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	It is correct that there is a mixture of peer reviewed publications and reports by highly reputed research organizations, however for each case there is a peer reviewed journal article the results of which are then expanded in the reports. Also since the initial draft of this section 3 of the reports have been published as peer reviewed papers and these have been added.
135	80986	9	11	50	12	9	Authors may wish to show some of these findings on a map or a figure. (Monalisa Chatterjee, IPCC WGII TSU)	This was considered but practical considerations and space constraints made it impossible
136	62625	9	12	15	12	16	The Chinses cases can be supportive, see: "Atkin, M L Clarke, S J Mooney, B Wu, H M West, (2013) Responses to climate change and farming policies by rural communities in northern China: A report on field observation and farmers' perception in dryland north Shaanxi and Ningxia, Land Use Policy, 32,125-133". (2)Xu Yinlong, Ju Hui, Climate Change and Poverty: A Case Study of China[R]. Greenpeace, Oxfam. 2009. (yan zheng , Chinese Academy of Social Sciences (CASS))	Because of restructuring of this section in order to minimise duplication with Chapter 7 and reduce length, this reference was not used
137	57488	9	12	15	12	26	The relationship between food security and cliamte change, plese revise. (Luliu Liu, National Cliamte Center, CMA)	We did not understand this comment. The section has been restructured to become clearer
138	80987	9	12	15	12	26	Authors may wish to coordinate with chapter 7 on the components of food security figure in chapter 7. (Monalisa Chatterjee, IPCC WGII TSU)	We considered using the conceptual map of food security used in Chapter 7, but decided to cover these themes with different terminology
139	61216	9	12	26	12	26	Not sure where it should go - but here might be as good as anywhere - I found a discussion of the existing water stress crisis lacking - it would be valuable to highlight lack of effective regulatory / property policies for abstraction leading to declining water tables eg most urgently in Ganges (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Now briefly mentioned under Water
140	80988	9	12	33	12	33	It may be helpful if these themes are explicitly stated. (Monalisa Chatterjee, IPCC WGII TSU)	We feel they have been stated as explicitly as space allows
141	80989	9	12	41	0	0	This could be a separate sub section. (Monalisa Chatterjee, IPCC WGII TSU)	This has been done
142	80990	9	12	49	12	50	If the chapter has several potential cost related findings, it may be useful to put them together in a table. (Monalisa Chatterjee, IPCC WGII TSU)	We have concentretd discussions of cost in the section on valuations, and the existing table therein

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
143	72950	9	12	50	0	0	Check that this is an impact of increased rather than decreased precipitation and explain why the effect of a small change in precipitation is so large. Paragraph is mainly discussing decreased precipitation. (UNITED STATES OF AMERICA)	IN the context of the paragraph as a whole this is now clarified: livestock production, and thus income from livestock, is reduced as value of land for cropping increases
144	80991	9	13	7	13	8	Another cost statement that could be in the potential cost table. (Monalisa Chatterjee, IPCC WGII TSU)	We have concentretd discussions of cost in the section on valuations, and the existing table therein
145	72951	9	13	18	0	0	Also due to reduced net income from the alternative of crop production. Delete jargony "Ricardian method". (UNITED STATES OF AMERICA)	This has been noted in the text, and "Ricardian" deleted
146	82372	9	13	23	13	36	In addition to considering Chapter 7, the key findings of chapter 6 and 30 should be cross-referenced here. (Katharine Mach, IPCC WGII TSU)	This has been done (chh. 5,6,7 and 30 are cross-referenced in this section)
147	72952	9	13	37	0	0	Diversification mediates the risks of farming, but also farming mediates the risks of insecure non-farm income, particularly in peri-urban areas (Lerner & Eakin 2011; Lerner, Eakin, Sweeney 2013). Either way, food production is an important risk aversion strategy that is increasingly less stable with climate extremes. (UNITED STATES OF AMERICA)	These references are used at the beginning of 9.3.3.1, and also in the Cross-Chapter Box on Urbal-Rural Interactions
148	72953	9	13	44	14	2	Any intensification of the hydrologic cycle in arid/semi-arid areas could lead to a multitude of primary and secondary impacts to rural areas including damage to roads and bridges during flooding events and increased soil erosion and loss between drought/flood cycles (see... Nearing, M. A., F. F. Pruski, and M. R. O'Neal. "Expected Climate Change Impacts on Soil Erosion Rates: A Review."Journal of Soil and Water Conservation 59, no. 1 (January 1, 2004): 43-50.) Increasing wildfire activity can lead to a secondary impact of changing watershed hydrology and flood flows that can also damage infrastructure as has been happening with recent fires across the western U.S. Rural communities often have lower tax bases and capacity to deal with infrastructure damage and losses during to extreme weather events. (UNITED STATES OF AMERICA)	This point has been addressed in the text; the specific citation has been added
149	72954	9	13	46	14	2	The chapter lacks discussion of climate impacts on transportation in rural areas. The only mention of transportation in the document is on page 13, line 48, "For example, river flooding and sea level rise will produce temporary loss of land and land activities, and transportation infrastructure particularly on coastal areas."Recommend including in section 9.3.3.2 Infrastructure the following key points: (1) In rural areas where road and other transportation networks often lack redundancy, road closures due to climate impacts such as landslides or flooding can isolate communities, blocking access to hospitals, emergency services, and markets. (2) Climate impacts on transportation infrastructure may also impact shipping of agricultural products. For instance, barge shipments of agricultural products on the Mississippi River have been significantly impacted by floods and droughts. (Transportation Research Board Special Report 290: Potential Impacts of Climate Change on U.S. Transportation. National Research Council, 2008, p91. http://onlinepubs.trb.org/onlinepubs/sr/sr290.pdf) (UNITED STATES OF AMERICA)	These points have been covered within the space available and the specific cittaion has been used. The Mississippi barge traffic case is also used in a different cntext in the Cross-Chapter Box on Urban-Rural Interactions
150	72955	9	13	46	14	2	There is some literature on infrastructure impacts of rural areas of the developed world. For example; The study of New York State (Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State. Annals of the New York Academy of Sciences 1244 (2011) UR - http://dx.doi.org/10.1111/j.1749-6632.2011.06331.x DO - 10.1111/j.1749-6632.2011.06331.x) contains extensive discussions of the impacts of climate change on infrastructure in rural areas -- see in particular, chapters on water resources, telecommunications: Jacob, K., N. Maxemchuk, G. Deodatis, A. Morla, E. Schossberg, E., I. Paung, J. Lopeman, R. Horton, D. Bader, R. Leichenko, P. Vancura, and Y. Klein. 2011. Telecommunications. Annals of the New York Academy of Sciences. Special Issue: Responding to Climate Change in New York State 1244, 2-649 DOI: http://dx.doi.org/10.1111/j.1749-6632.2011.06331.x Shaw, S., R. Schneider, A. McDonald, S. Riha, L. Tryhorn, R. Leichenko, P. Vancura, A. Frei, and B. Montz, 2011. Water Resources. Annals of the New York Academy of Sciences. Special Issue: Responding to Climate Change in New York State 1244, 2-649 doi: 10.1111/j.1749-6632.2011.06331. (UNITED STATES OF AMERICA)	The section was comprehensively redrafted within space constraints and several new references added from developed countries
151	72956	9	13	52	0	0	Increases in rainfall or extreme rain events coupled with a decrease in total rainfall would increase sedimentation of reservoirs. (UNITED STATES OF AMERICA)	Impacts on reservoirs are now specifically mentioned
152	72957	9	14	13	14	16	The point about global integration trends is not clear. Needs to be elaborated. (UNITED STATES OF AMERICA)	This sentence has been removed and the section substantially revised
153	82373	9	14	15	14	15	Here presentation of a level of confidence may be preferable to a likelihood term. (Katharine Mach, IPCC WGII TSU)	The sentence containning the likelihood term has been deleted
154	84739	9	14	15	14	15	Please consider use of a level of confidence here rather than "likely," as this statement does not seem to be based directly on quantitative evidence. (Michael Mastrandrea, IPCC WGII TSU)	The sentence containning the likelihood term has been deleted

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
155	80994	9	14	19	0	0	This section should perhaps address rural to urban migration only. (Monalisa Chatterjee, IPCC WGII TSU)	Both rural-urban and rural-rural migration are important and the text reflects this
156	82374	9	14	19	0	0	Section 9.3.3.3.1. The chapter team should consider further cross-referencing key findings of chapter 12 within this subsection. (Katharine Mach, IPCC WGII TSU)	Cross-referencing has been done
157	62626	9	14	19	14	51	It should indicate "climate change induced migration" here, see: [1]Reuveny R. Climate Change-induced Migration and Violent Conflict[J]. Political Geography, 2007,26(6):656-673. [2] Brown O. Migration and Climate Change. IOM Migration Research Series No. 31[R]. Geneva: International Organization for Migration, 2008. (yan zheng , Chinese Academy of Social Sciences (CASS))	The point has been noted and the Brown reference used: space constraints and a concern not to duplicate work in Chapter 12 have meant this section is short
158	72958	9	14	19	14	51	Studies on 'climate refugees' and environmental migration have been largely done in the developing world, but it's unclear how applicable they are or will be in rural areas in developed countries. Rural poverty and increasing rural land prices through 'exurbanization' may limit the ability of rural populations, say in the U.S., to move in response to climatic shocks. Also, Native American reservations are largely rural as well with no real ability to migrate in response to climatic shocks. (UNITED STATES OF AMERICA)	The section has been re-drafted, the text made more precise and relevant references incorporated to reflect varied experiences on migration and climate variability / climate stress
159	72959	9	14	19	14	51	The migration section is repetitive of the section on migration in chapter 12. This section should limit the discussion to migration that is relevant for rural areas and should explain the relevance. Many of the citations included are not rural-specific. (UNITED STATES OF AMERICA)	The section has been re-drafted, the text made more precise and relevant references incorporated to reflect varied experiences on migration and climate variability / climate stress
160	70797	9	14	21	0	0	See also Maldonado et al (2013) 'The impact of climate change on tribal communities in the US: displacement, relocation, and human rights, in Climatic Change, DOI 10.1007/s10584-013-0746-z (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	The section has been re-drafted, the text made more precise and relevant references incorporated to reflect varied experiences on migration and climate variability / climate stress
161	82375	9	14	22	14	22	Presentation of a level of confidence may be preferable to a likelihood term here, following the uncertainties guidance for authors. (Katharine Mach, IPCC WGII TSU)	The likelihood term has ben removed, but we decided not to substitute with a confidence term
162	84740	9	14	22	14	22	Please consider use of a level of confidence here rather than "likely," as this statement does not seem to be based directly on quantitative evidence. (Michael Mastrandrea, IPCC WGII TSU)	The likelihood term has ben removed, but we decided not to substitute with a confidence term
163	80993	9	14	27	14	29	Chapter 12 should be cross refered here. (Monalisa Chatterjee, IPCC WGII TSU)	This has been done
164	82376	9	14	50	14	50	Detection is mentioned here, even though future impacts are the focus of the section. Do the challenges of detection also limit ability to make projections? (Katharine Mach, IPCC WGII TSU)	The sentence has been rephrased to stress projection of future impacts
165	84741	9	14	50	14	50	"Projection" may be clearer than "detection" here, given the specific meaning of the latter in terms of observed changes, and the forward-looking context here. (Michael Mastrandrea, IPCC WGII TSU)	The sentence has been rephrased to stress projection of future impacts
166	72960	9	15	1	16	34	It is not clear why such a long and detailed discussion of trade is relevant for this chapter. This discussion seems repetitive of information that should be included in Chapter 7. The discussion should focus on studies that examine the effects of changing agricultural trade and trade policies on rural areas. (UNITED STATES OF AMERICA)	The section has been written in consultation with chapter 7 wherein the primary responsibility for the section lies with Ch 9. Text edited and shortened.
167	82377	9	15	3	15	3	The timeframe of this statement should be clarified. (Katharine Mach, IPCC WGII TSU)	This has been done
168	72961	9	15	4	15	7	No updated version of WTO 2009? No later year data from FAO annual agricultural trade yearbooks? (UNITED STATES OF AMERICA)	Later editions of both sources have been used
169	82378	9	15	7	15	14	The assessment findings of chapter 7 on agricultural price spikes could be cross-referenced here. (Katharine Mach, IPCC WGII TSU)	This has been done
170	80995	9	15	16	15	36	Several cost related statements that could be in the potential cost table. (Monalisa Chatterjee, IPCC WGII TSU)	This comment was unclear to the authors
171	57757	9	15	16	15	42	price projections are covered in chapter 7, best to refer there or at least ensure consistency. Trade is not discussed there so it is good to keep that part, but it would be good if it did not rely solely on nelson et al. and if some synthesis statements could be made. (David Lobell, Stanford University)	Cross-reference is made to Chapter 7, an additional reference for trade (Tamiotti) has been cited, and several more synthetic assessments have been added on trade projections and adaptation options
172	72962	9	15	23	15	42	Are these real price increases above the general inflation rate? Please clarify in the text. (UNITED STATES OF AMERICA)	The text has been edited to clarify this
173	80996	9	15	44	0	0	Author team may wish to use a figure with this dscussion. (Monalisa Chatterjee, IPCC WGII TSU)	This did not seem feasible to the author team
174	72963	9	16	2	0	0	The large price increases discussed earlier in this chapter should be factored into estimates of changes in trade, instead of just mentioning there are price effects in addition to the volume effects. (UNITED STATES OF AMERICA)	text edited and clarified

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
175	72964	9	16	20	0	0	Food donors that switch to more efficient system of buying food in the recipient country or within the region instead of developed countries could offset higher supply costs. (UNITED STATES OF AMERICA)	Regional procurement of food aid is now explicitly mentioned
176	61217	9	16	22	16	22	total volume of embedded water projected to decrease' - this seems very implausable and counter intuitive - and therefore needs explaining - one could only expect it because there will be less production to trade?! (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This sentence has been removed
177	61218	9	16	25	16	34	Here the implication of the discussion is increasing food insecurity for the land- and cash-poorest - and therefore social protection measures should be emphasised - whether buffer stocks or 'right to food' payments (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This has been addressed in the re-written text for this section
178	79522	9	17	1	0	0	Knowledge: no mention of CGIAR and NARC's here. Why not? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This section is on impacts on knowledge transmission not on knowledge as a mechanism for adaptation. NARS are mentioned in 9.3.5.1 and 9.4.4 below
179	72965	9	17	1	17	19	Diffusion of knowledge will be an important tool for climate change adaption/mitigation across rural areas, but amazingly enough, rural access to high speed internet and even cell phone coverage is quite low across rural areas in the U.S. limiting access to new tools and resources (see http://www.broadbandmap.gov/). Also, traditional mechanisms aiding in the 'diffusion of knowledge' in rural areas like the U.S. Land Grant University and Cooperative Extension system are seeing dramatic declines in funding and are shrinking in scope and reach. (UNITED STATES OF AMERICA)	The internet access issue has now been mentioned. The issue of agricultural extension decline because of funding did not seem to belong here
180	80997	9	17	12	17	19	This paragraph is more about impact and should be integrated with impact sections. (Monalisa Chatterjee, IPCC WGII TSU)	The current section is in fact on impacts
181	72966	9	17	17	0	0	What is LTK? Is it same as TEK? (UNITED STATES OF AMERICA)	The author team decided to standardise on TK for traditional knowledge
182	79523	9	17	22	0	0	second order impacts: very useful section but very little knowledge - not sure this reflects the literature well. I would have thought that there was a lot more literature on this issue in relation to biofuels and REDD+ (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	References have been added and coverage expanded
183	72967	9	17	22	17	53	The use of rural lands for solar or wind energy development has implications for local vs. state control of land use policies and also creating potential conflicts over other resources like local water supplies. This is happening with the development of concentrated solar power facilities in desert areas of the western U.S. that also need access to water for cleaning mirrors and power generation. (UNITED STATES OF AMERICA)	Some literature has been added concerning local implications of development of renewable energy
184	64907	9	17	30	17	42	Also concern for social, cultural, economic, and rights costs of biofule production (ie. impact of biofuel production on indigenous livelihoods and culture). See German, L., Schoneveld, G., and Pacheco, P., (2011) The Social and environmental impacts of biofuel feedstock cultivation evidcenc from multi-site research in teh forest frontier. In Ecology and Society 16(3): 24. (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	These issues have been incorporated at the end of the second paragraph of the section
185	69069	9	17	44	17	45	REDD mechanisms haven't been developed under the UNFCCC umbrella. It's better to use the term REDD+ instead (NETHERLANDS)	This has been clarified and more references added
186	61219	9	17	44	17	53	Yes REDD mechanism important to mention - although it would be good to possibly refer to the recent 'is the window for REDD closing' discussions from Meine et al - readiness activities have not transformed into market funded shcemes as there is no current or foreseable carbon market to pay. Additionally market based REDD is conceived as an OFFSET not really an emissions reduction scheme. Further it is apparent that good governance of forested landscapes is more effective than token REDD schemes. (Campbell ref. not in bibliog). (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	More references, including one from Meine (but not the opinion piece suggested) , explaining the objectives of REDD+ and lessons for success have been added in order to balance the text. The Campbell reference is now listed
187	69068	9	17	44	17	53	The text is unbalanced. REDD+ can also benefit rural people (NETHERLANDS)	REDD has now been better explained differentiating between the objectives of the program, and the difficulties and potential conflicts in implementation
188	72968	9	17	53	0	0	Please explain nested and polycentric in the text. (UNITED STATES OF AMERICA)	The text has been modified to avoid this phraseology

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
189	70798	9	18	2	0	0	This section should include impacts on traditional food systems, in addition to agriculture. See, for example, Lynn et al (2013) 'The impacts of climate change on tribal traditional foods' Climatic Change DOI 10.1007/s10584-013-0736-1, and Nakashima, D.J., K. Galloway McLean, H.D. Thulstrup, A. Ramos Castillo, and J.T. Rubis (2012). Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. UNESCO and UNU, Paris and Darwin, 120pp. (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	Linkages with indigenous populations, poverty and well-being have been mentioned in this section. The specific references have not been used as the focus is on monetary valuation
190	80998	9	18	2	0	0	Section 9.3.4 should be condensed to highlight findings pertaining to rural areas only. (Monalisa Chatterjee, IPCC WGII TSU)	The section has been shortened, with a tighter focus on rural areas
191	79062	9	18	4	18	26	One problem with valuation you may want to address more prominently is that of the choice of interest rates in case different effects over different time horizons are to be compared. This is implicitly included in "understanding of value" and "philisophical approaches", but this may not be obvious to every reader. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This has been done and the reference added
192	80999	9	18	28	18	42	Authors may wish to cross refer regional chapters in this paragraph. (Monalisa Chatterjee, IPCC WGII TSU)	The text has been edited and cross-referencing done accordingly
193	72969	9	18	30	0	0	Does this apply to all of Africa or only certain regions? Please explain in the text. (UNITED STATES OF AMERICA)	Done
194	72970	9	18	32	18	33	Add "C global mean temperature increase" after "degrees", State the time horizon. What global temperature increase and time assumptions were used in the World Bank studies? What countries? (UNITED STATES OF AMERICA)	Done
195	72971	9	18	53	0	0	What are instrumental metrics of risk? (UNITED STATES OF AMERICA)	The text has been edited for clarification
196	81000	9	19	8	19	11	Authors may wish to add a few words description of these perspectives. (Monalisa Chatterjee, IPCC WGII TSU)	The new text following this sentence elaborates upon it.
197	64348	9	19	20	19	22	The three references provided only suppport the final part of the phrase - that part concerning Arctic communities. (Don Lemmen, Canada National Study)	The text has been removed from here; it has been clarified with new references added and contextualised under 9.3.3
198	76887	9	19	25	0	0	Section 9.3.4.1 needs to be rewritten. Currently the section is not reviewing any literature on the subject. It mentions two papers about ENSO and provide a table. The section needs to provide a balanced text by drawing conclusions from the paers in the table. (Food and Agriculture Organization of the United Nations (FAO))	The tabular format economises on space while highlighting the heterogeneity in impacts (illustrative as mentioned in the table heading) across countries and regions which arise from the use of different methodologies and assumptions underlying the concerned model; relevant references are provided for the interested reader
199	57758	9	19	27	19	42	there are impacts of weather beyond the sectors mentioned. See e.g. Hsiang, S.M. (2010). Temperatures and cyclones strongly associated with economic production in the Caribbean and Central America. Proceedings of the National Academy of Sciences, 107, 15367 Dell, M., Jones, B.F., & Olken, B.A. (2012). Temperature Shocks and Economic Growth: Evidence from the Last Half Century. American Economic Journal: Macroeconomics, 4, 66-95 (David Lobell, Stanford University)	text removed from this section on economy-wide impacts as it was not specifically rural.
200	59980	9	19	39	0	0	ENSO cycles are highly critical for Australian agriculture and also for many other countries. Agricultural planning and decision making is often focused around the current crop or pasture growing seasons, as well as for periods beyond one year. There are certain indications that these timescales are exactly those impacted by the extremes of ENSO - La Niña and El Niño - both of which often last for about 10-12 months, and typically have biggest impact in the Australian winter and spring. Therefore, it is important to analyse ENSO to evaluate climate impacts in agriculture. (AUSTRALIA)	Specific mention of Australia in this context is present in the text; new analysis is beyond the scope of this assessment
201	76888	9	19	45	0	0	Table 9-5 caption should specify that thi is a sample of studies "for the agriculture sector" (Food and Agriculture Organization of the United Nations (FAO))	Done
202	72972	9	19	53	0	0	Explain the water footprint tool. (UNITED STATES OF AMERICA)	Done
203	59446	9	20	14	20	19	Acknowledging that the Mediterranean area has been identified as being especially vulnerable to climate change and considering the gap in the literature, the authors could consider citing the work of Damigos (2012) that focuses on the impacts of climate change on mining industry in the Mediterranean Region, and Greece in particular. (Citation: Damigos, D. (2012). Monetizing the impacts of climate change on the Greek mining sector, Mitigation and Adaptation Strategies for Global Change, 17, pp. 865–878). (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	This reference has been added

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
204	72973	9	20	14	20	19	Mining is a good activity to mention in this section. It is understudied, but an important actor with respect to its access to power and capital in many rural areas and its use of resources like water. In the western U.S., many mining companies use a great deal of water and have historic priority rights to water that directly impact rural water supplies. Climate change will most likely impact these supplies and increase conflict over this resource in rural areas. Discuss these affiliated issues. (UNITED STATES OF AMERICA)	Text has been added to clarify and highlight concerns
205	71314	9	20	18	20	19	The idea of the "extent of loss" is introduced but not defined. What types of loss are being referred to? (CANADA)	The text has been clarified; the factors determining losses have been added
206	81001	9	20	24	20	26	Such findings can be added in tables like 9.5. (Monalisa Chatterjee, IPCC WGII TSU)	This sub-section on economy-wide impacts has been removed
207	82379	9	20	24	20	26	For this projection, it would be best to specify the relevant climate/socio-economic scenario. Additionally, the acronym ADB could be clarified. (Katharine Mach, IPCC WGII TSU)	This sub-section on economy-wide impacts has been removed
208	59447	9	20	24	20	51	The authors could consider including in Section 9.3.4.3 the results of the study of the Bank of Greece regarding the impacts of climate change in Greece, in particular those referred in Chapter 3: “The cost of climate change for Greece” (available at: http://www.bankofgreece.gr/BogDocumentEn/CHAPTER_%20III.PDF) (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	This sub-section on economy-wide impacts has been removed
209	72974	9	20	24	20	51	Is there not more information that can be discussed on GDP and economy-wide impacts? There must be much more out there than basically these two examples: one from SE Asia, and one from northern North America. Further, this section on arctic issues needs to be explored more fully. This is the only section of the chapter dealing with issues in Arctic/cold locales. There is much more information out there than this and the authors should seek it out and reference it accordingly. (UNITED STATES OF AMERICA)	As for Comment 206. We have introduced other arctic material into the chapter, for example under infrastructure
210	72975	9	20	26	20	51	Based on what global mean temperature increase and time period? (UNITED STATES OF AMERICA)	The text has been re-organized; some scenario details are now included under section 9.3.3.2
211	78233	9	20	35	0	0	Nigeria witnesses different climate impacts – more heat and less rain in the arid north, increased torrential rains in the south with implications for gully erosion in rural areas, and sea level rise along the southern coastline – and without a strong response, Aaron (2011) notes that climate change would cost the country between 6 percent and 30 percent of its GDP by 2050, worth between $100 billion and $460 billion. [Aaron Sayne, Climate change Adaptation and Conflict in Nigeria. Special Report 274 of The United States Institute of Peace, 2011] (Elochukwu Ezenekwe, Nnamdi Azikiwe University)	This sub-section on economy-wide impacts has been removed
212	64349	9	20	48	20	51	Proper reference for this sentence is Furgal and Prowse (2008) - referenced elsewhere in this chapter: (Don Lemmen, Canada National Study)	The correct reference has now been used
213	82380	9	20	48	20	51	For this example, the timeframe and climate/socioeconomic scenario for the projection should be specified. (Katharine Mach, IPCC WGII TSU)	The text has been re-organized; this suggestion has now been incorporated in section 9.3.3.2
214	82381	9	21	14	21	16	The timeframe for this example could be clarified. (Katharine Mach, IPCC WGII TSU)	This reference has been removed
215	72976	9	21	15	0	0	This is the baseline, not climate change impact. Please modify the text accordingly. (UNITED STATES OF AMERICA)	This reference has been removed and the text edited
216	82382	9	21	19	21	19	Where "costs" are mentioned here, are economic damages or adaptation costs, or both, meant? (Katharine Mach, IPCC WGII TSU)	the text has been rewritten: it has been clarified that these are damage costs from floods
217	81002	9	21	28	21	30	perhaps it should be 'and countries in Africa'. (Monalisa Chatterjee, IPCC WGII TSU)	Done
218	82383	9	21	31	21	32	The increase in poverty following a single climate shock could be clarified--is it due to sensitivity to climate in general and climate extremes and variability, or does it also illustrate sensitivity to climate change? (Katharine Mach, IPCC WGII TSU)	The text has clarified that it refers to climate extremes
219	82384	9	21	34	21	35	It would be helpful to specify the duration of the drought meant here by "a long drought". (Katharine Mach, IPCC WGII TSU)	The text has been edited and clarified
220	59448	9	21	43	21	50	The authors could consider citing also the work of Elsasser and Messerli (2001) and Wolfsegger et al. (2008) (Citation 1: Elsasser, H. and Messerli, P. (2001). The Vulnerability of the Snow Industry in the Swiss Alps, Mountain Research and Development, 21 (4), pp. 335–339. Citation 2: Wolfsegger, C., Gössling, S. and Scott, D. (2008). Climate Change Risk Appraisal in the Austrian Ski Industry. Tourism Review International, Volume 12, Number 1, pp. 13-23). (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	The suggestion has been incorporated: the later reference is deemed more relevant and has been included

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
221	72977	9	21	43	21	50	Another good citation for this section would be... http://jpe.library.arizona.edu/volume_15/Collins.pdf (Journal of Political Ecology) This is a study of the importance of an 'amenity economy' in the White Mountain forest region of rural central Arizona that relies on tourism/recreation. There is a recognition of the threat of climate change to this region (increasing wildfire risk in particular) and its potential impact on the local economy. (UNITED STATES OF AMERICA)	This reference has been incorporated
222	72978	9	21	43	22	4	In North America alone there is far more literature on climate change and tourism than what is covered here. This section is inadequate both in terms of depth and breadth and a more thorough lit review must be done. (UNITED STATES OF AMERICA)	New references have been added, but the focus is on the valuation aspects rather than impacts on tourism per se
223	59449	9	22	1	22	3	The authors could consider citing the work of Fleischer and Sternberg (2006). (Citation: Fleischer A. and Sternberg M. (2006). The economic impact of global climate change on Mediterranean rangeland ecosystems: A Space-for-Time approach, Ecological Economics, 59, pp. 287-295). (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	This reference has been incorporated
224	65350	9	22	7	22	22	Research shows that mortality from meteorological disasters of rural areas is six times higher than that of urban areas (Source: Causes of death and demographic characteristics of victims of meteorological disasters in Korea from 1990 to 2008. Environmental Health 2011, 10:82). There was an analysis that diseases linked to climate change including Leptospirosis, Scrub typhus, HFRC are most frequently occur among people working in agricultural and fishery sector. Since those people are mostly living in rural areas, it can be said that rural areas are relatively vulnerable compared to urban areas. (Source: Correlations between climate change-related infectious diseases and meteorological factors in Korea, J of Preventive Medicine and public health 2010;43(5); 436-444, the thesis presents disease incidence distribution by specific administrative regions in urban and rural areas.) (REPUBLIC OF KOREA)	This section has been removed due to the paucity of literature comprehensively covering valuation of rural health in the context of climate change; the interested reader is directed to the health chapter in the introductory section; the specific reference provided has been passed on to the health chapter; also see response to comment 107
225	72979	9	22	9	22	22	This section should be covered in more depth. Australia and the UK have published many papers on this, which are not referenced. Undoubtedly other parts of the world have more info on this as well. Further, it is not enough to just reference other chapters--a summary of what is said in those chapters must be included in this chapter. If we can imagine a policy-maker coming to find out about health in rural areas, they are unlikely going to want to go and dig through several chapters of this lengthy document. All of the relevant info must be at least summarized in the appropriate chapter. (UNITED STATES OF AMERICA)	This section has been removed due to the paucity of literature comprehensively covering valuation of rural health in the context of climate change; the interested reader is directed to the health chapter in the introductory section; the specific reference provided has been passed on to the health chapter; also see response to comment 107
226	72980	9	22	13	0	0	Africa is a continent, not a region. Did you mean a particular region on the continent? Please explain in the text. (UNITED STATES OF AMERICA)	This sub-section has been removed
227	59981	9	22	29	23	44	The role of adaptive capacity should be mentioned here as a concept that is useful for describing the strengths and assets that people and communitites have which reduce their vulnerability? Adaptive capacity is similar to this idea of livelihoods or 'entitlement' approaches, but because it plays such a key role in the standard conceptual framework for vulnerability (exposure + sensitivity = potential impact; potential impact - adaptive capacity = residual vulnerability), it ought to be included here in the discussion. This approach has been developed and applied empirically in several publicly available spatial vulnerability assessments/reports to inform policy audiences (none of which appear to have been consulted). Examples are: Allen Consulting 2005, Climate change risk and vulnerability, report to the Australian Greenhouse Office, Department of the Environment and Heritage, Canberra, available at sfrpc.com/Climate%20Change/4.pdf (pdf 1.86mb). Schröter, D & ATEAM consortium 2004, Global change vulnerability: assessing the European human–environment system, Potsdam Institute for Climate Impact Research, Germany, available at unfccc.int/files/meetings/workshops/other_meetings/application/pdf/schroeter.pdf (pdf 895kb). Metzger, M.J. & Schroter, D. 2006, 'Towards a spatially explicit and quantitative vulnerability assessment of environmental change in Europe', Regional Environmental Change, no. 6, pp. 201-1 Stenekes, N., Reeve, I, Kancans, R, Stayner, R, Randall, L & Lawson, K 2012, Revised indicators of community vulnerability and adaptive capacity across the Murray–Darling Basin: a focus on irrigation in agriculture, ABARES report to client prepared for the Murray–Darling Basin Authority, Canberra, available at http://www.mdba.gov.au/bpkid/bpkid-view.php?key=242pAN2tT5RE9gj*xrUHSxVEzhtWdH00ZYp56GR8AsI= (pdf 4538kb) (AUSTRALIA)	Adaptive capacity has used in the third paragraph in connection with the most common approaches to analysing vulnerability, and passim thereafter

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
228	59982	9	22	34	22	38	It would be useful to provide definitions of vulnerability (even if there are several competing ones) in a section that is about competing definitions. For e.g. Nelson (2010) says that vulnerability is “the susceptibility of a system to disturbances determined by exposure to perturbations, sensitivity to perturbations, and the capacity to adapt.” (This definition is from Nelson, W. Adger and K. Brown, Adaptation to environmental change: contribution of a resilience framework. Annual Review of Environment and Resources, 32 (2007), pp. 395–419.) (AUSTRALIA)	The text has been changed in accordance with the glossary definitions of contextual and starting point vulnerability
229	59983	9	22	34	22	38	Please explain briefly what “end-point or outcome vulnerability” actually is. (AUSTRALIA)	As for comment 228; we have cross-referenced the glossary
230	81003	9	22	34	22	38	in AR5 vulnerability is separate from exposure. Perhaps that could be mentioned here and WGII glossary can be cross refered. (Monalisa Chatterjee, IPCC WGII TSU)	As for comment 228; we have cross-referenced the glossary
231	72981	9	22	34	22	45	Which definition of vulnerability does this report use, one or both? If both, would be best to distinguish them using the separate terms mentioned. (UNITED STATES OF AMERICA)	This section has been redrafted to clarify that the main focus is on starting point vulnerability
232	59984	9	22	41	22	41	There is a sentence in 9.3.5.1 Competing Definitions of Vulnerability in the 2nd dot point (p.22) that is incomplete: “and thus widening the...” ? (AUSTRALIA)	This sentence has been removed
233	82385	9	23	7	23	7	Given the usage of the phrase "starting point vulnerability," which does not seem to be the intended meaning here, it might be clearest to avoid the phrase here. (Katharine Mach, IPCC WGII TSU)	The section has been clarified to show what we mean by starting point vulnerability, and why we are using it
234	77343	9	23	16	23	16	A stronger dependence on climate conditions was one of the major causes of smallholders´ climate vulnerability in southern Peru (Sietz et al. 2012). Farmers who generate non-agricultural income are better able to deal with recurrent weather extremes such as droughts and frosts. Ref: Sietz, D., Mamani Choque, SE. and Lüdeke, MKB. (2012) Typical patterns of smallholder vulnerability to weather extremes with regard to food security in the Peruvian Altiplano. Regional Environmental Change 12(3): 489 - 505. (diana sietz, Wageningen University)	Done; the reference has been added
235	77342	9	23	17	23	18	Income constraints and poverty in terms of limited crop area and livestock clearly relate to higher climate vulnerability of smallholders in southern Peru (Sietz et al. 2012). The findings of this study are validated against independently reported damage due to weather extremes. REFERENCE: Sietz, D., Mamani Choque, SE. and Lüdeke, MKB. (2012) Typical patterns of smallholder vulnerability to weather extremes with regard to food security in the Peruvian Altiplano. Regional Environmental Change 12(3): 489 - 505. (diana sietz, Wageningen University)	Done; the reference is cited in 9.3.5.1
236	62627	9	23	20	23	26	About the socio-economic driving factors of migrants vulerability, see “The analysis shows that Rural–urban migration in mega-deltas is an outcome of many forces Economic factors are often the underlying drivers of migration, but they are mediated by social–political factors. “ Seto, K. C. Exploring the dynamics of migration to mega-delta cities in Asia and Africa: Contemporary drivers and future scenarios, Global Environmental Change, Volume 21, Supplement 1, December 2011, Pages S94-S107 (yan zheng , Chinese Academy of Social Sciences (CASS))	This reference has been added
237	81004	9	23	28	23	39	These paradoxes should be highlighted further. Moreover, factors that have been observed but not understood should be clarified in the key findings. (Monalisa Chatterjee, IPCC WGII TSU)	In the redrafted section we have de-emphasized contradictions stemming from different approaches to vulnerability. Low agreement on some issues (e.g. on rainfed v. irrigated agriculture, market orientation) is priminent here and relayed in the ES
238	82386	9	23	29	23	29	Following the uncertainties guidance for authors, it would be preferable to present "low agreement" in italics here. Additionally, a summary term for evidence could potentially be presented. (Katharine Mach, IPCC WGII TSU)	Done: agreement and evidence terms used at two contrasting points of the paragraph
239	82387	9	23	41	23	41	Following the uncertainties guidance for authors, is it possible to present a summary term for agreement, and potentially also for evidence, here? (Katharine Mach, IPCC WGII TSU)	Done: agreement and evidence terms used at two contrasting points of the paragraph

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
240	72982	9	24	3	0	0	Women may have less ability to cope with reductions in income due to climate change, although existing data are not sufficient to establish this as a general conclusion. However, data are generally only available for poverty at the household level, rather than for individuals within households. Consequently, income data can only be disaggregated for female-headed households vs. male-headed or dual-headed households. Quisumbing, A., L. Haddad, and C. Pena. 2001 "Are Women Over-Represented Among the Poor? An Analysis of Poverty in 10 Developing Countries"Washington, DC: International Food Policy Research Institute, FCND Discussion Paper 115. Anriquez, Gustavo. 2010. "Demystifying the Agricultural Feminization Myth and the Gender Burden."Rome: Food and Agriculture Organization of the United Nations. Background paper prepared for the State of Food and Agriculture 2010-2011. Data from 35 studies in 20 countries demonstrated that female-headed households were only more likely to be poor than male-headed households in some countries, while the opposite was true in other countries. Also, data limitations make it difficult to distinguish among households headed by single, widowed, or divorced women and those supported by remittances from family members living outside the home. In much of the developing world, women have less access to agricultural inputs and services than men and have lower crop yields as a result. However, reported data vary due to different definitions of food production and collaborations between women and men in provision of land, labor, and capital in dual-headed households. Doss, C. 2010. "If Women Hold Up Half the Sky, How Much Food Do They Produce?"Rome: Food and Agriculture Organization of the United Nations. Background paper prepared for the State of Food and Agriculture 2010-2011. FAO (2011) also estimated that 400 million women are small-scale livestock producers --approximately two-thirds of the total. Although women often share livestock responsibilities with men and children, certain types of livestock tend to be more associated with women in some locations, for example, poultry, dairy cattle, and pigs. Women may also comprise 30% of total employment in fishing, aquaculture, and fish marketing and processing. Differences by location are large; in aquaculture women constitute 33% of the workforce in China, 42% in Indonesia, and 80% in Vietnam. FAO. 2011. State of Food and Agriculture: Women in Agriculture: Closing the Gender Gap for Development. Rome: Food and Agriculture Organization of the United Nations. (UNITED STATES OF AMERICA)	The reviewer's observations have been taken into account in redrafting section 9.3.5.1.5 on gender (rather than at this point in the text). Please note that members of the Ch.9 team have also been involved in drafting a Cross-Chapter Box on Gender. The first reference offered was considered but not used as newer references are available
241	81005	9	24	9	24	15	Authors may wish to make these nuances more visible in the chapter. (Monalisa Chatterjee, IPCC WGII TSU)	Section 9.3.5.1.2 has been substantially revised to reflect the linkages with vulnerability and risk
242	72983	9	24	24	24	24	Ericksen and Silva 2009 is cited in the chapter but is not in the references. The article by Silva et al -- should also be cited here as it elaborates on the other piece through a detailed empirical assessment of double exposure (i.e. exposure to both climatic and economic shocks) Here are the two references: 2010. Silva, Julie A., Siri Eriksen, and Zacarias A. Ombe. Double Exposure in Mozambique's Limpopo River Basin. The Geographical Journal 176:6-24. 2009. Eriksen, Siri and Julie A. Silva. The Vulnerability Context of a Savanna Area in Mozambique: Household Drought Coping Strategies and Responses to Economic Change. Environmental Science & Policy 12:33-52. (UNITED STATES OF AMERICA)	This has been done
243	77341	9	24	33	24	35	A study in southern Peru shows that smallholders living in remote areas are highly vulnerable to weather extremes (Sietz et al. 2012). It employs an elaborate validation of this finding. Considering an even further increase of weather extremes due to climate change suggests more severe climate vulnerability of smallholders in this region. Reference: Sietz, D., Mamani Choque, SE. and Lüdeke, MKB. (2012) Typical patterns of smallholder vulnerability to weather extremes with regard to food security in the Peruvian Altiplano. Regional Environmental Change 12(3): 489 - 505. (diana sietz, Wageningen University)	This has been done
244	81006	9	24	33	24	50	aspects such as scale of farms, type of agricultural activities, are important in determining the experience and need to be highlighted. Moreover, the example given in lines 43 to 50 is a classic complex vulnerability example. Authors may wish to make it and such examples more visible in the chapter. (Monalisa Chatterjee, IPCC WGII TSU)	The visibility request was considered, and the authors feel that issues of vulnerability are now adequately highlighted in the chapter
245	70793	9	24	40	0	0	*Observation: Suggest adding that observations of agricultural performance after extreme climatic events in the last two decades have revealed that resiliency to climate disasters is closely linked to the high level of on-farm biodiversity, typical of traditional farming systems (Altieri and Nicholls, 2013). *References: Altieri, M and C Nicholls (In Press) "The Adaptation a nd Mitigation Potential of Traditional Agriculture in a changing Climate" In Journal of Climatic Change: Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (2013) (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	We noted the point on on-farm biodiversity; the reference is not located in public domain

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
246	64904	9	24	40	24	50	Suggest including Altieri, M et al. (In Press) "The Adaptationa nd Mitigation Potential of Traditional Agriculture in a changing Climate" In Journal of Climatic Change Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	We could not locate the reference
247	64905	9	24	40	24	50	See also Ford et al. (2006) Vulnerability to climate change in the Arctic: A Case Study from Arctic Bay, Canada" Global Environmental Change 16.2 (2006): 145-160. (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	This reference has been added
248	72984	9	24	46	24	50	A good citation for this section that reinforces the value of local knowledge... The authors should consider citing: Brugger and Crimmins. 2012. Weather, Climate, and Rural Arizona: Insights and Assessment Strategies. A Technical Input to the U.S. National Climate Assessment. March 1st, 2012. http://www.climas.arizona.edu/files/climas/project-documents/public/1400/nca-report-final.pdf (UNITED STATES OF AMERICA)	The reference did not seem suitable here as local knowledge is not its primary focus; we have cited it in section 9.3.5.1.6
249	72985	9	25	19	25	32	Federal control of grazing lands in the western U.S. and associated land use policies will likely be stressed with associated climatic shocks with drought and changing landscapes (e.g. wildfire). Climate change will necessitate increased coordination and cooperation between livestock producers and federal managers with flexible and responsive management policies to navigate an increasingly more variable climate in the future. (UNITED STATES OF AMERICA)	We considered these points but in the absence of a reference did not include them here
250	81007	9	25	35	0	0	Authors may wish to cross refer chapter 12 here. (Monalisa Chatterjee, IPCC WGII TSU)	This has been done
251	72986	9	25	44	0	0	Elsewhere this report discussed studies minimizing the role of climate change in migration. Perhaps all migration should be included in one section, rather than confusingly being spread throughout 2-3 sections. (UNITED STATES OF AMERICA)	Text on migration has been revised in sections 9.3.2 (observed impacts) 9.3.3.3 (spatial and regional interconnections) and 9.3.5.1 (drivers of vulnerability and risk) for accuracy and relevance. We do not feel that amalgamating these in one place would lead to a well-structured assessment
252	81008	9	25	47	0	0	Authors may wish to cross refer chapter 13 here. (Monalisa Chatterjee, IPCC WGII TSU)	On removing our own box on gender, we decided this section should cross-reference the Cross-Chapter Box on Gender, rather than Chapter 13
253	81009	9	26	6	0	0	Authors may wish to cross refer chapter 13 here. (Monalisa Chatterjee, IPCC WGII TSU)	On removing our own box on gender, we decided this section should cross-reference the Cross-Chapter Box on Gender, rather than Chapter 13
254	81010	9	26	6	27	2	The take home message from this discussion seems to be that multiple types of efforts can work as it would ensure that different groups receive assistance from different sources. Perhaps this can be explicitly said in the findings. (Monalisa Chatterjee, IPCC WGII TSU)	This Box has been deleted
255	82388	9	26	39	26	39	Following the uncertainties guidance for authors, is it possible to present a summary term for agreement instead of little "agreement"? (Katharine Mach, IPCC WGII TSU)	As for Comment 255
256	81011	9	27	7	0	0	Key debates about knowledge and how it is produced , managed, dessiminated should be highlighted in chapter findings like ES. (Monalisa Chatterjee, IPCC WGII TSU)	Knowledge is mentioned twice in the ES and prominently in the redrafted 9.5.1
257	82389	9	27	9	27	9	Given differing usages across chapters, it might be helpful to briefly specify the general definition of institutions being employed here. This could be done, for example, by making reference to the report glossary. (Katharine Mach, IPCC WGII TSU)	Without ofering a formal definition, the redrafted section 9.3.5.1.3 makes our concept of institutions clearer
258	81012	9	27	46	0	0	It will be useful if it is explained how these sub categories fit into the section key vulnerabilities and risks. (Monalisa Chatterjee, IPCC WGII TSU)	It is the result of how we addressed vulnerability in the chapter. We primarily focused on the drivers to later assess how these drivers produce "outcomes" relating to particular groups in rural areas which, according to the assessment of the authors, are highly vulnerable to climate change
259	57489	9	27	48	27	51	The description is too general. Please describe the effects of climate change in rural regions in detail. (Luliu Liu, National Cliamte Center, CMA)	This is now covered in previous sections of the chapter
260	59450	9	28	5	28	45	Box 9-3. See comment for Page 21. (Dimitris Damigos, Mining and Metallurgical Engineering, NTUA, Greece) (GREECE)	The relevant reference has been incorporated in section 9.3.4.4
261	82390	9	28	21	28	21	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	"Likely" has been deleted
262	82391	9	28	32	28	32	Following the uncertainties guidance for authors, is it possible to present a summary term for evidence here instead of "little evidence"? (Katharine Mach, IPCC WGII TSU)	This has been replaced with "low evidence"

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
263	72987	9	28	42	28	43	The chapter incorrectly interprets the findings of Scott et al. 2006. Wheres climate change poses a risk to only 4 of 14 ski areas during the period through 2029, during the later part of the 21st century (2070-2099), only 4 areas will not be at significant risk. The article also points out the significant costs associated with snowmaking and the uncertainties about water availability and concludes that "Climate change represents a notable threat to the winter recreation sector in the Northeast, and the potential economic ramifications for businesses and communities heavily invested in winter tourism and related real estate is sizeable" Additional discussion of impacts of climate change on rural tourism (e.g. trout fishing) in New York state is found in: Wolfe, D., J. Comstock, H. Menninger, D. Weinstein, K. Sullivan, C. Kraft, B., Chabot, P. Curtis, R. Leichenko, and P. Vancura. 2011. Ecosystems. Annals of the New York Academy of Sciences. Special Issue: Responding to Climate Change in New York State 1244, 2-649 doi: 10.1111/j.1749-6632.2011.06331. (UNITED STATES OF AMERICA)	The text has been modified accordingly
264	71315	9	28	43	28	43	What are the six areas? (CANADA)	The text has been modified. In the interests of reducing length we did not name individual ski areas.
265	62628	9	28	48	0	0	China is a typical case about herdsmen's vulerability under changing climate, see the refrence: Wang X. Y, Zhang Q, (2012) Climate variability, change of land use and vulnerability in pastoral society: a case from Inner Mongolia, Nomadic Peoples, Vol 16, No1. (yan zheng , Chinese Academy of Social Sciences (CASS))	This reference has been added
266	70794	9	28	48	0	0	*Observation: Suggest adding that pastoralism is also intimately linked to mobility and the option to access resources across extensive areas, which constitutes a key component for community resilience (Nakashima et al. 2012). *Reference: Nakashima, D.J., K. Galloway McLean, H.D. Thulstrup, A. Ramos Castillo, and J.T. Rubis (2012). Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. UNESCO and UNU, Paris and Darwin, 120pp. (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	The role of mobility is now further emphasized
267	81013	9	28	48	0	0	Authors should consider adding a small table identifying vulnerable communities and factors that influence their vulnerabilities. (Monalisa Chatterjee, IPCC WGII TSU)	Authors have decided not to add another table due to space constraints
268	64906	9	28	48	29	5	Pastoralism is also intimately linked to mobility and the option to access resources across extensive areas - this constitutes a key component for community resilience (see Nakashima, D et al. (2012) "Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation" Paris, UNESCO and Darwin, UNU, pg 47). See also cases in Sub-sahara Africa and South Asia Kristjanson et al.(2010) Livestock and Women's Livelihoods: A review of the Recent Evidence, Discussion Paper No. 20 Nairobi, Kenya ILRI and Kenya McPeak, J and Doss, C. (2006) Are household production decisions cooperative? Evidence on migration and milk sales from Northern Kenya. American Journal of Agricultural Economics, 88(3) 525-541. (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	All these references now used except McPeak, which is interesting but more focussed on economic modelling
269	78327	9	28	48	29	17	Suggestion to have a look at a paper that is currently under review for a special issue on "loss and damage from climate change". It looks at pastoralists in Northern Burkina Faso who are faced with increasingly adverse climatic conditions and whose coping capacity has been thwarted by constraints on their moblility (transhumance). Source: Traore, S., T. Owiyo & Y. Sokona (under review). Dirty drought causing loss and damage in Northern Burkina Faso. Int. J Global Warming. The manuscript for this forthcoming article has been submitted to TSU according to the review instructions. Document name: IJGW_LD_Burkina.pdf (Kees van der Geest, United Nations University)	This reference has been included as "in press"
270	72988	9	29	3	0	0	Cultural factors may limit the willingness of pastoralists to switch to settled agriculture. (UNITED STATES OF AMERICA)	The question of cultural motivations for pastoralists' choices of mobility or sedentarism is complex - contemporary views usually downplay cultural factors. In the context of climate change, the authors' judgement was not to stress these factors
271	82392	9	29	22	29	22	It would be preferable to cite the specific relevant chapter for this statement, instead of the more generic reference used. (Katharine Mach, IPCC WGII TSU)	This has been done
272	82393	9	29	26	29	26	A summary term for agreement could be used here, even parenthetically at the end of the sentence instead of at the start of the sentence. (Katharine Mach, IPCC WGII TSU)	The section was redrafted and this sentence removed
273	82394	9	29	52	29	52	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	"likely" replaced with "potential"

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
274	62629	9	30	14	30	14	For developing countries' case on adaptation policy making, in the second China'a National Assessment Report on Environmental and climate change (2012) . (yan zheng , Chinese Academy of Social Sciences (CASS))	In the light of the numerous examples on adaptation policy already used, many from peer-reviewed literature, and the length constraints, we decided not to use this reference
275	82395	9	30	18	30	27	Calibrated uncertainty language used on line 18, 19, 21, and 27 should be italicized. (Katharine Mach, IPCC WGII TSU)	This has been changed
276	81014	9	30	23	30	26	An example will be very useful here. (Monalisa Chatterjee, IPCC WGII TSU)	An example has been added from Malawi
277	69070	9	30	25	30	26	Please provide additional information on 'existing coping strategies…short-term resource availability' (NETHERLANDS)	An example has been added from Malawi
278	69071	9	30	26	30	30	The statement 'in developing countries, …the improvement of rural areas' seems contradictory to the statement on page 3, line39-41(Most studies…, and geographical locations) (NETHERLANDS)	We do not see the contradiction between the ES statement on the valuation of impacts, and this statement on the relation of development to adaptation
279	81015	9	30	33	0	0	Chapter 2 should be cross refered here. (Monalisa Chatterjee, IPCC WGII TSU)	The cross-reference has been inserted
280	59985	9	30	37	30	38	In relation to the sentence "In Australia, the Queensland Government has set policies in anticipation of sea level rise", on 8 October 2012, the Queensland Government's State Planning Policy 3/11: Coastal Protection was suspended and replaced by the Draft Coastal Protection State Planning Regulatory Provision. This new provision does not take the same anticipatory approach to planning for sea level rise as SPP 3/11. Suggest revising or deleting sentence to reflect this recent policy change (and revising references to Queensland Government policies in anticipation of sea level rise in Box 25-2). For more details see: (i) http://www.ehp.qld.gov.au/coastalplan/management-plan/ and (ii) http://www.eianz.org/sitebuilder/aboutus/knowledge/asset/files/326/121029ltrtominister powellredraftsprp.pdf (AUSTRALIA)	This has been addressed by inserting a cross-reference to box 25.2
281	72989	9	30	39	0	0	Some developing countries use the historical 10-year flood risk or less in their planning. (UNITED STATES OF AMERICA)	We did not find a reference to support this, and it dos not in fact differ from the existing argument of the sentence
282	71316	9	30	40	30	41	Suggest capitalizing "Northern Canada". (CANADA)	Sentence removed and replaced with cross-reference to section 26.9.1
283	82396	9	30	46	30	47	"very high confidence" as calibrated uncertainty language should be italicized. (Katharine Mach, IPCC WGII TSU)	This has been done
284	72990	9	30	49	0	0	Most index-based crop insurance is small-scale donor-funded pilots. The private sector is unlikely to replicate this on a large scale without subsidies due to the increasing climate risk and high transaction costs. (UNITED STATES OF AMERICA)	This section was edited for length. No explicit reference to the complex arguments around commerical viability was included but the general point of the need for supportive national policy was
285	82397	9	31	4	31	4	It would be helpful to clarify further what is meant by "responsive." (Katharine Mach, IPCC WGII TSU)	We have clarified this by changing wording to "has the capacity to respond more rapidly"
286	81016	9	31	4	31	12	Does this apply specifically in rural context? (Monalisa Chatterjee, IPCC WGII TSU)	We feel it is sufficiently clear that the paragraph concerns rural areas
287	62630	9	31	4	31	18	For a Chinese case, please find the reference: Atkin, M L Clarke, S J Mooney, B Wu, H M West, (2013) Responses to climate change and farming policies by rural communities in northern China: A report on field observation and farmers' perception in dryland north Shaanxi and Ningxia, Land Use Policy, 32,125-133 (yan zheng , Chinese Academy of Social Sciences (CASS))	We considered this reference for section 9.4.4 but in the end saw it as of lesser relevance
288	70795	9	31	14	0	0	Suggest including an Australian example here as well - several examples to choose from, e.g. Russell-Smith J, Monagle CM, Jacobsohn M, Beatty RL, Bilbao B, Millan A, Vessuri H and Sanchez-Rose I. (in press) Can savanna burning projects deliver measurable greenhouse emissions reductions, and sustainable livelihood opportunities for indigenous and local communities, in fireprone settings? In Journal of Climatic Change: Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (2013)| Green, D, J Billy, and A Tapim. "Indigenous Australians' knowledge of weather and climate." Climatic Change 100.2 (2010): 337-354. (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	The second reference has been incorporated as being more relevant in an adaptation context
289	82398	9	31	14	31	14	Following the uncertainties guidance for authors, a summary term for evidence could be used here. (Katharine Mach, IPCC WGII TSU)	We have changed this to "high evidence"

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
290	64908	9	31	14	31	19	Suggest including relevant examples from Australia specifically Russell-Smith et al. (in press) Can savanna burning projects deliver measurable greenhouse emissions reductions, and sustainable livelihood opportunities for indigenous and local communities, in fire-prone settings? In Journal of Climatic Change Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples. Also Green, Donna, Jack Billy, and Alo Tapim. "Indigenous Australians' knowledge of weather and climate." Climatic Change 100.2 (2010): 337-354. (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	The second reference has been incorporated as being more relevant in an adaptation context
291	72991	9	31	18	0	0	Additionally, the increasing presence of peri-urban areas provides alternative income sources for farmers facing climate shocks, and helps serve as a buffer to climate extremes. For example, increased flooding in peri-urban central Mexico results in farmers depending more on non-farm incomes (Eakin, Lerner, Murtinho 2010). (UNITED STATES OF AMERICA)	This suggestion has not been used here as it not in suited for a paragraph on the role of local knowledge. It is used in the Cross-Chapter Box on Urban-Rural Interactions
292	81017	9	31	23	31	23	Do these 'wide ranging and manifold examples' represent the average /common state of things or anomalies in rural areas. (Monalisa Chatterjee, IPCC WGII TSU)	This phrase is no longer used
293	57759	9	31	28	31	28	this section should be coordinated with chapter 7 and the other adaptation chapters, to ensure consistency. I don't see any obvious inconsistencies, but partly because the section mainly just list options but doesn't talk about effectiveness or limits or anything quantitative. the table though is a nice list of references (David Lobell, Stanford University)	This has been cross-referenced to chapter 7 and the adaptation chapters
294	61220	9	32	7	32	17	water - 'improved management is required' - agreed but what does it look like? Basin level? Pro-poor? Effective regulation against over abstraction. Focus on more efficient water use? Protection of base river flows and multiple functions etc. Role of forests in catchments & ecosystem based adaptation (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The text has been changed to accurately reflect the point being made; it is hopefully clearer now
295	72992	9	32	21	0	0	Netherlands control measures had very high capital costs. (UNITED STATES OF AMERICA)	noted as additional information; but does not change the relevance of the text
296	70799	9	32	36	0	0	See also Voggasser et al (2013) 'Cultural impacts to tribes from climate change influences on forests' Climatic Change DOI 10.1007/s10584-013-0733-4 (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	This was considered for section 9.4.2 but not used because of space constraints
297	71317	9	32	36	33	11	Manipulation of vegetation composition and stand structure has been suggested as a strategy for offsetting climatic change impacts on wildfires in Canada. See these two recent papers: Terrier, A., Girardin, M.P., Périé, C., Legendre, P., Bergeron, Y. 2013. Potential changes in forest composition could reduce impacts of climate change on boreal wildfires, Ecological Applications 23: 21-35. Girardin, M.P., Ali, A.A., Carcaillet, C., Blarquez, O., Hély, C., Terrier, A., Genries, G., Bergeron, Y. In press. Vegetation limits the impact of a warm climate on boreal wildfires. New Phytologist (http://www.cef-cfr.ca/uploads/Membres/girardin-new-phytol.pdf) . The following paper in Forest Ecology and Management also provide options for adapting to high fire risks under climate change: Girardin, M.P., Ali, A.A., Carcaillet, C., Gauthier, S., Hély, C., Le Goff, H., Terrier, A., Bergeron, Y. . 2013. Fire in managed forests of eastern Canada: Risks and options, Forest Ecology and Management, Special Issues on Mega Fires Vol 294: 238-249. (CANADA)	We have reviewed the references and cited 2 of them (the two that are already published)
298	57490	9	32	44	32	45	Suggest add case in China. China's 'increasing vs. decreasing balance' land-use policy for dealing with hollowed villages makes a major contribution to freeing land for afforestation, which also has income-generation potential for rural communities. Long, H., Y. Li, Y. Liu, M. Woods, and J. Zou, 2012: Accelerated restructuring in rural China fueled by 'increasing vs. decreasing balance' land-use policy for dealing with hollowed villages. Land Use Policy, 29(1), 11-22. (Luliu Liu, National Cliamte Center, CMA)	We have reviewed this reference but decided not to cite it, as the focus is more on the land use policy, with afforestation only as a potential outcome of the land use policy. There are also no explicit links between afforestation and adaptation
299	59073	9	32	48	32	49	Additional examples could be added to show how forests can contribute to people's adaptation. In a review on the role of forests and trees in reducing people's vulnerability to climate variability or change, Pramova et al. (2012) identified five cases of EBA among which four are relevant to this chapter on rural areas (the fifth is about urban trees): (1) ecosystem products used by local communities facing climatic threats (safety nets); (2) the regulation of water, soil, and microclimate by trees in agricultural fields for a resilient production; (3) water regulation and soil protection for reduced climate impacts in watersheds; (4) protection of coastal areas from climate-related threats [Pramova E., Locatelli B., Djoudi H., Somorin O., 2012. Forests and trees for social adaptation to climate variability and change. WIREs Climate Change 3:581–596. doi: 10.1002/wcc.195] (Bruno Locatelli, CIRAD-CIFOR)	We have reviewed the reference and cited it

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
300	70796	9	33	1	0	0	The experiences of Caprivi in Namibia are also relevant here, see e.g Russell-Smith J, Monagle CM, Jacobsohn M, Beatty RL, Bilbao B, Millan A, Vessuri H and Sanchez-Rose I. (in press) Can savanna burning projects deliver measurable greenhouse emissions reductions, and sustainable livelihood opportunities for indigenous and local communities, in fireprone settings? In Journal of Climatic Change: Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (2013) (Kirsty Galloway McLean, United Nations University - Institute of Advanced Studies)	We were unable to locate this reference
301	81018	9	33	1	33	11	Not clear if this applies in a rural context. (Monalisa Chatterjee, IPCC WGII TSU)	This text concerns biodiversity and ecosystem management and therefore applies to rural areas
302	64909	9	33	1	33	12	See Russell-Smith et al. (in press) Can savanna burning projects deliver measurable greenhouse emissions reductions, and sustainable livelihood opportunities for indigenous and local communities, in fire-prone settings? In Journal of Climatic Change Special Issue on Climate Change Mitigation and Adaptation with Local Communities and Indigenous Peoples (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	This paper is not accessible
303	59074	9	33	7	33	8	The text says that there is virtually no peer-reviewed literature on PES specifically for emissions reductions, while there are a lot of papers on this topic (carbon payments, CDM, REDD+, etc.). The authors may have wanted to say that there is virtually no peer-reviewed literature on PES specifically for adaptation (?). I think the chapter could mention some literature on PES and adaptation and discuss how PES can contribute to adaptation or be used as a policy instrument for adaptation. First PES can produce adaptation co-benefits if the services that are paid for contribute to reducing the vulnerability of the society to climate change (e.g. hydrological services) or when the protection of these services contribute to sustaining other services that are relevant to adaptation. Second PES can also have adaptation-relevant institutional spillovers, for example with institutional strengthening or increased coordination between economic sectors (Wertz-Kanounnikoff et al., 2012). Third PES can also influence (positively or negatively) the adaptive capacity of people receiving the payments (Locatelli et al., 2008). [Wertz-Kanounnikoff S., Locatelli B., Wunder S., Brockhaus M., 2011. Ecosystem-based adaptation to climate change: What scope for payments for environmental services? Climate and Development 3(2): 143-158. doi:10.1080/17565529.2011.582277] [Locatelli B., Rojas V., Salinas Z., 2008. Impacts of payments for environmental services on local development in northern Costa Rica: A fuzzy multi-criteria analysis. Forest Policy and Economics 10(5): 275-285. doi:10.1016/j.forpol.2007.11.007] (Bruno Locatelli, CIRAD-CIFOR)	We have clarified that the literature relating to PES and adaptation (not emissions reductions) is limited - but have also added these additional references
304	81019	9	33	14	0	0	If these categories are similar to those in outcome section then a table could be put together to highlight factors that drive vulnerability and exposure and adaptation experience. (Monalisa Chatterjee, IPCC WGII TSU)	The categories we have used under vulnerability outcomes and under adaptation are not sufficiently similar to allow us to create a table
305	82399	9	33	16	33	31	For these statements, the key findings of chapter 6 and 30 could be cross-referenced. For example, the example provided on lines 16 and 17 is potentially overly narrow. (Katharine Mach, IPCC WGII TSU)	Cross-references have been inserted
306	81020	9	33	35	0	0	It will be helpful to know if this is a classic or special example from rural areas. (Monalisa Chatterjee, IPCC WGII TSU)	This box has been deleted
307	81021	9	33	51	0	0	It will be helpful to know if this is a classic or special example from rural areas. (Monalisa Chatterjee, IPCC WGII TSU)	This is a complex example that illustrates different themes from rural areas of developing countries
308	72993	9	34	18	0	0	Replace "beverage" with "coffee." (UNITED STATES OF AMERICA)	"Beverage crops" is a termed used by FAO and includes tea and cocoa, as well as coffee, and sometimes hops
309	56780	9	35	7	0	0	Section 9.4.4 Limits and Constraints to Rural Adaptation mentions that both hard (physical) and soft (financial, social, cultural) barriers must be considered but only talks about access to land, water, market and credit, technologies and particularly information. There is no mention of socio-cognitive or cultural barriers although there is a growing body of research that highlights their importance, including in rural and peri-urban areas. Indeed, sections 2.2.3.1 and 2.2.3.2 in Chapter 2 on Foundations of Decision-making presents a good overview of this literature on subjective and social dimensions of decision-making that should be better integrated into this section. (Ainka Granderson, University of Melbourne)	A cross-reference has been inserted in the final paragraph (before Box 9-4)
310	82400	9	35	9	35	9	"very high confidence" as calibrated uncertainty language should be italicized. (Katharine Mach, IPCC WGII TSU)	we have italicised the term
311	82401	9	35	9	35	11	These statements should also cross-reference the findings and relevant sections of chapter 16. (Katharine Mach, IPCC WGII TSU)	This has been done

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
312	78326	9	35	10	35	11	The definition of hard limits and soft limits used here differs substantially from AR5 glossary and I think also from the way it is conceptualized in WG2, chapter 16. (Kees van der Geest, United Nations University)	We do not talk about hard and soft limits, but mention limits typically defined as hard, before focussing on constraints (glossary "factors that make it harder to plan and implement adaptation actions or that restrict options") that we characterise as typically soft. We do not see a contradiction with the glossary or Ch.16
313	81022	9	35	47	0	0	Chapter 22 should be cross refered here. (Monalisa Chatterjee, IPCC WGII TSU)	We did not consider this cross-reference appropriate
314	82402	9	35	49	35	49	For this statement, further clarity would be helpful in terms of the relevant geographic area and context of the statement. (Katharine Mach, IPCC WGII TSU)	Clarification made (inserted "in Rural Africa")
315	64910	9	36	26	36	36	Relevant literature that has not been cited: Speranza, Chinwe Ifejika, et al. "Indigenous knowledge related to climate variability and change: insights from droughts in semi-arid areas of former Makueni District, Kenya." Climatic Change 100.2 (2010): 295-315. and Kijazi, A. L., et al. The use of indigenous knowledge in weather and climate prediction in Mahenge and Ismani wards, Tanzania. CCIAM, 2012.; Enock, C. Makwara. "Indigenous Knowledge Systems and Modern Weather Forecasting: Exploring the Linkages." Journal of Agriculture and Sustainability 2.2 (2013). (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	These references have been carefully reviewed and one (Speranza et al, 2010) has been added
316	72994	9	36	26	36	36	Another good citation for this section... Jochec, Kristi G., James W. Mjelde, Andrew C. Lee, and J. Richard Conner. "Use of Seasonal Climate Forecasts in Rangeland-Based Livestock Operations in West Texas."Journal of Applied Meteorology 40, no. 9 (September 1, 2001): 1629‰ÛÒ1639. doi:10.1175/1520-0450(2001)040<1629:UOSCFI>2.0.CO;2. (UNITED STATES OF AMERICA)	The geographical focus of this box has been clarified to be Africa, so this reference will no longer be appropriate
317	82403	9	36	43	0	0	Section 9.5.1. Calibrated uncertainty language should be used to characterize the chapter team's degree of certainty in findings presented here. Line-of-sight references should also be provided to clarify the origin of these findings within the chapter's assessment and to thereby provide traceability. More importantly, though, this section should be meaningfully differentiated from the executive summary, or otherwise it should be deleted. In its current form, it is not clear how much additional insight it provides. (Katharine Mach, IPCC WGII TSU)	This section has been thoroughly rewritten and differentiated from the Executive summary. Calibrated uncertainty language and line-of-sight references have been used where appropriate
318	84742	9	36	43	0	0	Section 9.5.1: The purpose of this section is unclear, and it confusingly overlaps with the executive summary of the chapter. My recommendation would be to delete the section, ensuring that these conclusions are captured in the executive summary. If retained, these statements must be assigned calibrated uncertainty language. (Michael Mastrandrea, IPCC WGII TSU)	This section has been thoroughly rewritten and differentiated from the Executive summary. Calibrated uncertainty language and line-of-sight references have been used where appropriate
319	82404	9	36	47	36	48	This statement should be coordinated with chapters 8 and 13. (Katharine Mach, IPCC WGII TSU)	As for comment 39
320	81023	9	37	2	37	4	The sentence needs rephrasing. (Monalisa Chatterjee, IPCC WGII TSU)	This sentence has been removed form this section
321	72995	9	37	27	0	0	Also damage to infrastructure and occupational heat stress of farm, fishery, mining and forest workers. (UNITED STATES OF AMERICA)	Infrastructure is now mentioned but, in line with decisions taken to reduce overlap with Ch.11, health impacts are not
322	69072	9	37	45	37	46	The conclusion is unbalanced. Climate mitigation policies can also have positive impacts (NETHERLANDS)	This paragraph has been rewritten, in line with the thorough redrafting of the main text section 9.3.3.4, to cover positive and negative impacts
323	57850	9	37	45	37	47	It is not certain that biofuels or payments under REDD will negatively impact rural livelihoods. The conclusion on governance is fine, as negative outcomes are surely possible. However, positive outcomes are also possible in many important cases. Arndt, Channing, Karl Pauw, and James Thurlow. “Biofuels and Economic Development: A Computable General Equilibrium Analysis for Tanzania.” Energy Economics. 34:(2012): 1922–1930. Arndt, C., R. Benfica, and James Thurlow. "Gender Implications of Bio-fuels Expansion in Mozambique: A CGE Model Analysis." World Development. 39(9) (2011): 1649-1662. Arndt, C., S. Msangi, and James Thurlow. "Are biofuels good for African development? An analytical framework with evidence from Mozambique and Tanzania." Biofuels. 2(2) (2011): 221-234. Arndt, C., R. Benfica, F. Tarp, J. Thurlow and R. Uaiene. “Biofuels, Poverty, and Growth: A Computable General Equilibrium Analysis of Mozambique.” Environment and Development Economics. 15(2010): 81-105. Reilly, J., J. Melillo, Y. Cai, D. Kicklighter, A. Gurgel, S. Paltsev, T. Cronin, A. Sokolov, C. A. Schlosser, 2012: Using land to mitigate climate change: Hitting the target, recognizing the tradeoffs, Environ. Sci. Technol., 46 (11), pp 5672–5679, doi: 10.1021/es2034729. Also see work on REDD by Arild Angelsen and others. (Channing Arndt, University of Copenhagen)	This paragraph has been rewritten, in line with the thorough redrafting of the main text section 9.3.3.4, to cover positive and negative impacts

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
324	67865	9	37	45	37	47	The sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts on land-use and on the livelihoods of poor and marginalized people." presents a very much different evaluation on REDD+ from TS of WG3 (page45); "The implementation of REDD mechanisms and its variations that can represent a very cost-effective option for mitigation with high social and other environmental co-benefits". The relevant text of the underlying report (paragraph 9.3.3.4) raises issues related to community participation etc. in the ongoing REDD+ pilot projects, however, the REDD+ framework itself should not be judged as "potentially detrimental" only by the results of those pilot projects that are being implemented and are still in the early stages and in general lack sufficient infrastructures, framework, governance and capacity. The reviews of projects in Chapter 9, 13 are not always the result of result-based projects with payments under REDD, and references don't always reflect the result of Decision1 of UNFCCC COP16 where safeguards for REDD+ were defined, which should be promoted and supported when undertaking REDD+ activities. (Further, contents in Chapter 13 show some positive results projects even in early stages.)There is not a sufficient basis for conclusion of medium confidence.Due to the above reasons, this sentence "Climate policies, such as ... payments under REDD, will result in mixed and potentially detrimental impacts" should be deleted.But if some reference to (it any content) regarding climate policy is inevitable here, the sentence should be revised as follows; : "As climate polices, such as encouraging cultivation of biofuels, may result in mixed impacts on land-use and on the livelihoods of poor and marginalized people, the appropriate measures should be considered. " for aforementioned reason, also the contents in chapter 13 do not mean the climate polices, such as encouraging cultivation of biofuels and payments under REDD, always result in mixed impacts on land-use and on the livelihoods of poor and marginalized people. The policies might have detrimental impacts unless the appropriate policies are introduced. (JAPAN)	This paragraph has been rewritten, in line with the thorough redrafting of the main text section 9.3.3.4, to cover positive and negative impacts
325	79063	9	38	19	38	41	One problem not addressed here is the interdisciplinary assessment of land-use as a whole in rural areas. Rural communities use the surrounding area for agriculture, livestock and forestry in various ways, with the diversity of management systems and practices and their respective interactions and interdependencies often not so well understood. To address rural areas, it is therefore necessary to apply an approach considering all of the land-uses combined. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This point has been addressed in the rewritten sub-section
326	61221	9	38	21	38	41	All these points are important - I would also add how to achieve governance for ecosystem-based adaptation, and landscape level integrated NR management. Also sustainable intensification of agriculture is much discussed but little practiced - partly due to political economic obstruction. How to achieve policy transformation on this issue? (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	The governance point has been addressed in the rewritten sub-section. The sustainable intensification point was we felt beyond the scope of the chapter
327	72996	9	38	21	38	41	Many research gaps are missed. For example, more research into health, which is needed. The chapter does not ask for more research on tourism, which is also needed. Another need is more info on GDP, as well as more info on rural Arctic (and Antarctic) issues. (UNITED STATES OF AMERICA)	To avoid duplication of material more appropriate to Ch.11, this chapter does not cover health issues. It does not cover economy-wide issues such as GDP, and we chose not to identify research gaps on specific regions. We do now mention tourism within research gaps.
328	81024	9	38	46	0	0	FAQ 9-1 The question is broad and doesn't highlight any thing specific pertaining to rural areas and climate change. Another way of phrasing this question would be highlighting how vulnerability differs within rural areas and provide a complex vulnerability example. (Monalisa Chatterjee, IPCC WGII TSU)	This FAQ has been thoroughly redrafted
329	72997	9	38	47	38	50	Replace no "clear and unique definitions" with "multiple and conflicting definitions". Specify the definitions of rural used in the numbers presented. (UNITED STATES OF AMERICA)	The phrase concerned is not now used in the FAQ
330	81025	9	39	8	39	22	Addressing both impacts and adaptation in one question may not be most effective. (Monalisa Chatterjee, IPCC WGII TSU)	The FAQ has been split into 2 and 3
331	59014	9	51	36	51	37	The surnames are mistaken for given names. The reference should be: Wang, R.-Y., Z. Qiang, H.-Y. Li, Q.-G. Yang, H. Zhao, and Z.-G. Wang, 2007: Impact of climate warming on cotton growth in the Hexi Corridor area. Advances in Climate Change Research, 3, 57-59. (Xiao-Ling WANG, National Climate Center, China Meteorological Administration)	This has been done
332	65469	9	66	0	0	0	Add " °C " after 2-3 in 2nd Row under the heading "Impacts on agriculture and agricultural trade" in Table 9-1 (Naeem Manzoor, Global Change Impact Studies Centre (GCISC))	This has been done
333	81026	9	66	0	0	0	Table 9-1 It will be useful if another column is added to provide chapter and section numbers for these major findings from AR4. (Monalisa Chatterjee, IPCC WGII TSU)	We have not added a column but we have indicated section numbers in each document

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
334	82405	9	67	0	0	0	Table 9-2. Citations should be provided within the 1st box in the last row on page 67. (Katharine Mach, IPCC WGII TSU)	A citation has been provided
335	81027	9	67	0	68	0	Table 9-2 Perhaps the sources for these findings can be placed in a separate column. Some of the sources are missing. (Monalisa Chatterjee, IPCC WGII TSU)	Missing sources added; the way the table is presented now provides traceability; putting sources in a separate column would make this no longer possible
336	59016	9	69	0	0	0	Please compare Table9-1 with chapter 7 just in case of conflicts and repetition. (Xiao-Ling WANG, National Climate Center, China Meteorological Administration)	Information presented is internally consistent for the chapter and the data sources cited.
337	79524	9	69	0	0	0	Table 9.4: I would add an indication of the strength of the evidence for each row in this table (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	All the studies cited used the same method of assessment that is explained in the text, to allow readers to evaluate the strength of evidence
338	81028	9	69	0	0	0	Table 9-3 The caption should explain the meaning of incidence of extreme poverty, etc,. (Monalisa Chatterjee, IPCC WGII TSU)	This has been done
339	81403	9	69	0	0	0	Table 9-3: It would be more effective to present the data provided as a figure to be consistent with Figure 9-2. (Yuka Estrada, IPCC WGII TSU)	Representation as a figure would take more space and not help in clarifying the data
340	82406	9	69	0	0	0	Table 9-4. The relevant climate/socio-economic scenario, globally, should be specified, for examples using scenarios beyond regional levels of temperature increase. Additionally, it would be preferable to use footnotes within the table to indicate which sources support which examples. (Katharine Mach, IPCC WGII TSU)	The climate scenario and models used are explained in the text where the table is referenced. Footnotes to sources have been included
341	79525	9	70	0	0	0	Table 9.5: I would add an indication of the strength of the evidence for each row in this table (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	It would be beyond the scope of the assessment to do fresh analysis for developing a comparative indicator of strength of evidence
342	81404	9	70	0	0	0	Table 9-5: The layout of the table could be improved. Perhaps, “Finding and Estimate” could be the left most column and move the “Study: Author/s” column to the right to be consistent with other tables in the assessments. Also, since the information presented in the “Country/Region” column contains additional information such as Model names etc., the heading title should be renamed or create a new column with an appropriate title to accommodate those additional information. (Yuka Estrada, IPCC WGII TSU)	These changes have been made
343	82407	9	70	0	0	0	Table 9-5. In the caption for the table, the agricultural focus of the table should be specified. Additionally, within the "findings and estimates" column, the relevant time frame and climate/socio-economic scenario should be specified for all examples, as can be supported by the underlying studies. For the 4th example for Asia, it would be helpful to indicate if this annual spending for coping is in addition to current spending (that is, what is the baseline?). (Katharine Mach, IPCC WGII TSU)	The caption has been modified; for better presentation and to meet space constraints the text was converted into a table in the SOD; limited details have been accommodated. For the rest, the interested reader is directed to the reference provided.
344	59015	9	71	0	0	0	Table 9-6 Comment: Supplement the case of China in the table row of "Changing amount or area of land under cultivation" - expansion of paddy fields in northeast China (Gao and Liu, 2011) (Gao, J. and Y. Liu, 2011: Climate warming and land use change in Heilongjiang Province, Northeast China. Applied Geography, 31(2), 476-482.) (Xiao-Ling WANG, National Climate Center, China Meteorological Administration)	This reference has been added
345	81029	9	71	0	0	0	Table 9-6 Perhaps the sources for these findings can be placed in a separate column. (Monalisa Chatterjee, IPCC WGII TSU)	Moving dates to another column would confuse the referencing of sources
346	81405	9	71	0	72	0	Table 9-6 and Table 9-7: Perhaps, sources could be placed in a separate column to increase readability. TSU can provide help in refining these tables. (Yuka Estrada, IPCC WGII TSU)	As for Comment 345
347	82408	9	72	0	0	0	Table 9-7. Within the entry for demand-side mechanisms, policies, chapter 25 should be cross-referenced in terms of the Murray Darling Basin Authority. Additionally, the box reference should be to chapter 25. (Katharine Mach, IPCC WGII TSU)	The change has been made
348	68091	9	73	0	0	0	Figure 9-1 contains a world map with national borders. It is suggested to use a map without borders to avoid unnecessary disputes. (CHINA)	The figure has been redrawn wiyhout national borders
349	68092	9	73	0	0	0	Figure 9-2 contains a world map with national borders. It is suggested to use a map without borders to avoid unnecessary disputes. (CHINA)	In our opinion, the country borders need to remain because they identify the sources of data represented in the bars but the matter has been referred to the judgement of the TSU

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
350	72998	9	73	0	0	0	Figure 9.1: The legend should be labeled (ex. Percentage of emergency room visits for asthma), so the reader does not have to search through the caption to get a basic sense of what the figure is illustrating. It might also be helpful to make it clearer that these are predicted percentage increases or to include the baseline year these predicted values are compared against. (UNITED STATES OF AMERICA)	This comment seems to refer to another chapter
351	81030	9	73	0	0	0	Figures 9-1 and 9-2 are difficult to read. TSU can provide help in polishing these figures. (Monalisa Chatterjee, IPCC WGII TSU)	We have requested help from the TSU in producing readable figures but the underlying data should remain; please see response to comments 348 and 349
352	81402	9	73	0	0	0	Figure 9-1 and Figure 9-2: The scales are practically impossible to read. The inclusion of the continent in the background is supposed to be illustrative, but it's distracting. Suggest removing or moving elsewhere so that the map will not interrupt the readability of the data. (Yuka Estrada, IPCC WGII TSU)	Figure 9-1 has been redrawn and is easier to read. A redrawing of Figure 9-2 is still in production
353	82409	9	73	0	0	0	Figure 9-2. The blue shading of countries should be clarified within the caption for the figure. Additionally, what is meant by "percentage of rural population" could be clarified--percent of the population that is rural? (Katharine Mach, IPCC WGII TSU)	Data from original source pertains only to countries shaded blue; changes to caption have clarified percentage of the population that is rural