

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	60674	13	0	0	0	0	This is a very well written chapter, with excellent balance between developed and developing countries' experience. (Sofia Bettencourt, World Bank)	Thank you!
2	61331	13	0	0	0	0	We appreciate the emphasis on climate change as a threat multiplier, worsening existing poverty, and highlighting the gendered aspect. We also appreciate the inclusion of food price increases in the executive summary. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Thank you!
3	62879	13	0	0	0	0	The chapter focuses on the link between climate change, (CC) livelihoods, poverty and inequality. It takes a largely local perspective but does relate local livelihoods and poverty alleviation to cross-scalar processes. The chapter has four main sections: scope, definition; present and future impacts of CC on livelihoods and poverty; CC responses on livelihoods and poverty; and CC and efforts to alleviate poverty. It argues that CC is likely to intensify existing inequalities and place the poor in many countries, not only the poorest, under even greater pressure than they now face. Adapting to CC focuses on coping strategies rather than strategies that enhance people's economic and social lives. The authors say there are few studies which show 'positive livelihood trajectories' for the poor. One area not covered in the chapter is that of trans-border relations and their impact on local poverty alleviation and livelihood strategies. Long lasting adaptation strategies will not work unless a regional approach is taken so that the interconnectedness of ecological systems and their fragmentation by political and economic boundaries is better understood. An example here would be the Ganges Basin where several riparian states are locked together ecologically but where the distribution of power is heavily weighted towards India and China. Action at a distance is no more apparent than here where downstream people such as the Bangladeshis face the prospect of even further water diversions, which would seriously affect local capacities to adapt to CC.. (Bob Pokrant, Curtin University)	We agree that trans-border relations matter for designing long lasting adaptation strategies, including recognition of ecological systems and processes. However, our chapter focuses on impacts of climate change on livelihoods and poverty and the impacts of climate change responses. We refer to the adaptations chapters (14-16) for convey insights from the literature on ecosystem based adaptation, and where the literature permits, taking into account cross-border relations. We decided to limit our story line to where we saw most and most reliable evidence emerging from the literature.
4	62880	13	0	0	0	0	Overall the chapter makes for grim reading with a few success stories within a context of declining sustainable livelihoods. (Bob Pokrant, Curtin University)	Correct. Our task is to provide a comprehensive assessment of the literature, and most of the literature is grim. However, we highlight positive impacts where discussed in the literature.
5	63604	13	0	0	0	0	Replace in the whole chapter "race" by "skin color". Ratio: it is scientifically proofed that whole humankind belongs to the same race. (GERMANY)	No, race is the more commonly used term, and it is used throughout chapters of WGII. Skin color is only one of several racial makers. Skin color isn't a helpful marker for either race or ethnicity as skin color a) isn't the only marker and b) is read very differently in different cultures. So, for example, hair texture and facial features are more salient in some cultures than skin color as a marker of race, and even sometimes language or legal status. And someone whose skin is "latte" colored can be seen as black in one culture, white in others. It also won't get at the complexity of mixed race, which gets marked very differently than simply by skin color. Race is certainly a contested term, but very, very few people argue that we should drop the term particularly while there are legacies of racism still so prevalent. What is contested is whether it is a "biological" marker or a cultural marker, but the term itself has meanings far more robust than skin color.
6	64816	13	0	0	0	0	The authors of this chapter must be commended for an excellent chapter which provides a critical and engaging view of the realities of people's lives in facing climate change. This has long been lacking in IPCC reports. So many thanks! (JC Gaillard, The University of Auckland)	Thank you!
7	64817	13	0	0	0	0	Although the approach through the lense of marginalisation is particularly welcome and relevant more attention may be given to access to resources (assets) which compose people's livelihoods. As it stands it is rather mentioned en passant throughout the report. Access to these resources is however the key driver of both vulnerability and adaptation in dealing with climate change as those who are marginalised ultimately lacks access to resources and means of adaptation which are available to those with more power, hence the unequality in the ability to face the potential effects of climate change discussed in this chapter. (JC Gaillard, The University of Auckland)	We agree, access to assets/resources is vital for understanding vulnerability and adaptation. However, there is only limited literature available that links climate impacts to assets to resources. WE note this gap in 13.2.1.1.

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8	64818	13	0	0	0	0	The use of singular and plural forms of 'livelihood' is a bit unclear throughout the chapter. It's a key issue though as the use of the plural form may reflect the corrupt (income generating) view of the concept. (JC Gaillard, The University of Auckland)	We use singular and plural consistently throughout the chapter: singular when the term livelihood serves as a qualifier for a subsequent noun (e.g. livelihood trajectories), and plural when we mean people's (multifaceted and dynamic) livelihoods. The only exception is the usage in the term "Sustainable Livelihoods Framework" (or approach, which is standard usage in the research community.
9	64819	13	0	0	0	0	Referencing needs attention as for Scoones (1998) not Scoones and IDS (1998). (JC Gaillard, The University of Auckland)	Corrected.
10	64820	13	0	0	0	0	The use of the figures is a bit confusing as they often pop out of the blue without further discussion or explanation. They deserve to be better integrated within the argument. (JC Gaillard, The University of Auckland)	They are now integrated into the argument of the text.
11	64821	13	0	0	0	0	Ditto for the use of examples which often read as random shopping lists of cases not really justified in the context of the argument. (JC Gaillard, The University of Auckland)	The case studies are not a random shopping list but our best selection (compelling and conclusive in terms of detection and attribution of climate change) as part of our task: a comprehensive assessment of the literature, following a story line to convey key messages.
12	64822	13	0	0	0	0	The chapter gives appropriate attention to 'extreme' events but underestimate the importance of small-scale and frequent events. (JC Gaillard, The University of Auckland)	We highlight 'small-scale events' in the text (13.2.1) and in the research gaps. The new definition in the glossary "detection of impacts" allows for more examples.
13	64823	13	0	0	0	0	The process of marginalisation also deserves a tad more attention. (JC Gaillard, The University of Auckland)	Given the space limitations and the main emphasis on impacts of climate change and climate change responses, we need to limit ourselves to the background discussion in 13.1.3. and then evidence in 13.2 and 13.3.
14	64827	13	0	0	0	0	The use of 'adaptation' vs 'adaptive capacity' is unclear throughout the report. (JC Gaillard, The University of Auckland)	We use both terms, according to their usage in the IPCC: adaptation (adjustment) and adaptive capacity (ability to make adjustments). See glossary.
15	64829	13	0	0	0	0	The vocabulary re the less affluent countries (otherwise cited as poor, low-income and developing) needs to be harmonised (e.g. the Western, outdated and pejorative 'developing country' needs to be ditched). (JC Gaillard, The University of Auckland)	We have replaced 'developing countries' throughout the text with LICs, MICs, and HICs.
16	64830	13	0	0	0	0	The closing sections of the chapter need to reflect back upon the core argument of the early sections, i.e. that those who are marginalised lack access to resources and means of adaptation in facing climate change. As they stand the sections 13.4 does not mention the importance of addressing those issues. (JC Gaillard, The University of Auckland)	We refer to marginalization and multidimensional inequality in the second paragraph of 13.4. We talk about persistent inequalities, uneven access to resources and institutional support in 13.4.1. We talk about asset protection and systemic inequalities under social protection, and multidimensional poverty in 13.4.2. Given the plenary-approved outline, we are asked to assess interactions between climate change and poverty-reduction initiatives (which we do in 13.4). By contrast, we do not cover implications for adaptation (which is the task of chapters 14-16. The only exception is our new table on key risks and potential for risk reduction to adaptation.
17	65859	13	0	0	0	0	The Sustainable Livelihoods framework, which is used as conceptual framework for this chapter, emphasises the need to analyse interlinkages between assets, livelihoods strategies, and respective outcomes – processes that are mediated through "Transforming Structures and Processes" (renamed later as "Policy, Institutions and Processes" or PIP) and embedded in a "Vulnerability Context". Studying the critical livelihood literature, we observe a gradual shift of emphasis from less quantification of assets in 'asset pentagons' towards more in-depth analyses of certain aspects of livelihoods, such as intra-household power relations, the social significance of certain assets or the importance of institutions and policies, and also the influence on these struggles by 'the wider context' (e.g. processes of globalisation, politics, development interventions) (Ulrike Mueller-Boeker, University of Zurich)	We agree that this shift is important, and we acknowledge it now more explicitly under 13.2.1.1. However, most of the evidence in the literature on impacts of climate change and climate change responses is still on assets and to a certain extent on livelihood dynamics, but little on power dimensions and the wider context. We do address policies in 13.3. and development pathways in 13.4.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
18	65860	13	0	0	0	0	It is also crucial to understand and to highlight the 'active' role of poor people – and not to portray them as 'underdeveloped' or victims – in this case - of climate change impacts. They very often struggle to get access to resources required for a living, and often skilfully design livelihood 'strategies' under constraints. And it is crucial to analyse these constraints in the different regional contexts. Many 'traditional' institutional norms or state-imposed regulations hinder them in achieving livelihood security and capacity to adapt to changes. Research clearly hinted at traditional power relations, but equally showed the excluding consequences of laws and 'development programmes' of the modern nation-states. Research results also shed light on people's active efforts at overcoming these constraints specifically through concerned civil society organisations – such as struggles to access state services or to modify state rules. (Ulrike Mueller-Boeker, University of Zurich)	We agree. We stress the active role where there is good evidence in the literature at the intersection of climate change and livelihoods and poverty. Yet, the role of our chapter is to assess the literature on impacts. More attention is paid to agency and adaptive capacities in the adaptation chapters (14-16).
19	65861	13	0	0	0	0	In order to understand, how livelihoods, poverty and the lives of the poor, and inequality interact with climate change, it is crucial to analyse in more detail these aspects – the institutions, policies and politics (on different level) hindering or supporting poor people to cope with change. I propose that these aspects are taken up in this chapter. (Ulrike Mueller-Boeker, University of Zurich)	We have attempted to do just that, but are limited by space constraints and the available literature that also is precise with differentiating between climate change, climate variability, and extreme events. This remains our core focus.
20	65862	13	0	0	0	0	Concerning the huge body of publications used for this chapter, it has to be taken into account, that many of these studies documented people's observations on climate change. This is a reasonable approach. However, these observations are not systematically collected meteorological data, but rather subjective perceptions of the respondents' natural environment and – I assume – occasionally strategically positioned statements. In this context more reflexivity would be appropriate on the data used. (Ulrike Mueller-Boeker, University of Zurich)	We are now more explicit re the evidence considered in this chapter (13.2 and 13.2.)
21	65863	13	0	0	0	0	Another aspect is that climate change may have not always negative impacts on livelihoods of poor people, and this should be mentioned as well. (Ulrike Mueller-Boeker, University of Zurich)	We do acknowledge positive impacts and would like to do so more often but we are limited by the evidence in the literature. The overwhelming majority of observed impacts as well as future impacts from simulations are negative.
22	73535	13	0	0	0	0	Suggest that the authors include additional discussion and reference to the very poor in high income countries. (UNITED STATES OF AMERICA)	We have included more cases, although the literature on climate change impacts on the poor in HICs is sparse, especially when excluding health impacts (covered in Chapter 11).
23	73536	13	0	0	0	0	Some of the clearest text in the document is in the closing section, Section 13.5. - This chapter is entirely devoted to exploring poverty in relation to climate change (page 22, lines 30 - 31). -This would be an excellent introductory sentence for the whole chapter. Actually, most of that first paragraph (page 22, lines 28 - 39) would be much better placed at the front of the chapter rather than the end. The goal of the chapter should be to clearly elucidate the known and potential impact of climate change on livelihoods and poverty, and perhaps what the response might be or could be from the affected populations. Perhaps some sections, such as 13.1.1, 13.1.2, 13.1.3., and 13.1.4 include too much text on poverty and livelihoods in general, and in some instances may over-reach on what should be identified as a potential effect of climate change. Deleting some of that text will help sharpen the whole chapter. Attributing too much to climate change undermines explanations of those instances where known or potential climate change affects or interactions are clear and supported by data or models. (UNITED STATES OF AMERICA)	We have moved some of the conclusion text to 13.1. Thank you for the suggestion. We feel that the introductory section in 13.1. are fundamental as this is the first time the IPCC covers this topic.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
24	73537	13	0	0	0	0	The treatment of pastoralist systems and livelihoods is underplayed in this chapter, especially the importance of mobility, as an adaptation to changing weather and climate variability, to the success of these managers of the globe's extensive drylands. Very important to the success of pastoralist systems in drylands is a proper understanding of the challenges of dryland management. But understanding the challenges of sustainable development in drylands has been impeded by a number of major misconceptions, which function more as myths than science. (Mortimore 2009, p. 6-7. See citation below). The authors should consider including additional material from the following references: Catley, Andy, Jeremy Lind, and Ian Scoones, Eds. 2012. Pastoralism and Development in Africa: Dynamic Change at the Margins. Routledge Press. 328 pp. <a href="http://www.routledge.com/books/details/9780415540728/">http://www.routledge.com/books/details/9780415540728/</a> . [There are 20 chapters, all relating to pastoral and dryland development issues in the greater Horn (organized in sections on commercialization and markets, land, climate change and resources, conflict).] Mortimore, M. (with contributions from S. Anderson, L. Cotula, J. Davies, K. Facer, C. Hesse, J. Morton, W. Nyangena, J. Skinner, and C. Wolfangel). 2009. Dryland Opportunities: A new paradigm for people, ecosystems and development. IUCN, Gland, Switzerland; IIED, London, UK and UNDP/DDC, Nairobi, Kenya. x + 86p. <a href="http://www.iucn.org/publications">www.iucn.org/publications</a> . IIED/SOS Sahel. 2010. Modern and mobile. The future of livestock production in Africa's drylands. H. de Jode, ed. International Inst. of Environment (IIED) & SOS Sahel Int. UK. 88 p. <a href="http://www.iied.org/pubs/pdfs/12565IIED.pdf">http://www.iied.org/pubs/pdfs/12565IIED.pdf</a> (UNITED STATES OF AMERICA)	We recognize the importance of pastoral livelihoods and also cross-reference Ch 9 that has an entire section on pastoralists.
25	73538	13	0	0	0	0	There is much discussion of the impacts of climate change/variability on livelihoods and poverty but no mention of some of the ways that populations have traditionally adapted to extreme climate variability (e.g., transhumance, water harvesting, etc) and what the potential implications that climate change may have on the continued success of these practices. It is as important to document progress as to document the challenges. Amongst other reasons, these cases provide models for others and offer opportunities to develop evidence-based principles that could benefit the broader communities. Below is one example account of a response at scale in the Sahelian West Africa: An Account of a Large-scale Response to Climate Shocks in the Sahel While the West African Sahel is known for challenges associated with rainfall, the literature shows that in most years, the shocks are related more to rainfall variability than to the absolute volume of rainfall. (Kablan & et.al, 2008) ["Only 15-30% of the rainfall on average is used for productive crop growth. The major loss of rainwater appears to be due to high runoff and low infiltration rates during the high intensity rainfall."] The literature also shows that the effects of these shocks have been measurably reduced through use of improved rainfall and soil management technologies and systems. (Reij, Tappan, & Smale, 2009). Sahelian farmers have increased rainfall-use efficiency by adopting practices that (a) reduce run-off and increase infiltration and (b) increase soil organic matter in order to retain soil moisture and spur root growth. (Kablan & et.al, 2008) (Organic matter has the capacity to retain moisture equal to 90% of its weight. (Wood, Sebastian, & and Scherr, 2000). In Mali, research showed that ridge tillage reduced run-off and increased crop yields by up to 50%, with the largest differences between treated and control yields produced in a poor rainy season. (Doumbia, 2008) The researchers attributed increased productivity to reduced run-off and increased infiltration rates (66%) and to the generation of higher levels of soil organic matter (12-26%). These led to a 17% increase in soil moisture in the 0-160 cm portion of the profile (not taking into account the additional moisture drawn by the crop to produce a greater yield). When looking at the whole profile, the soil moisture content of the 80-160 cm portion was 21% greater on the treated fields. (Kablan & et.al, 2008) This deeper drainage was logically linked by the researchers to farmers reporting two resilience-building outcomes: Increased tree crop productivity and increased dry season irrigation. Farmers in one test village reported that winter gardens had increased from one to dozens and that revenue-generating tree crops (shea, baobab, tamarind, etc.) were more productive. (Doumbia D. M., 2010) A final finding from the Mali research was a 33% increase in fertilizer-use efficiency which was likely a product of increased soil moisture and soil organic matter. Research by IFDC showed that increased fertilizer-use efficiency is linked to rainfall-use efficiency and therefore to resilience. (Bremen H. W.) On the Central Plateau in Burkina Faso, Reij et.al, reported that farmers had treated over 200,000 hectares of hard-pan soil with zai's (planting pockets) and other forms of water harvesting technologies. (Reij, Tappan, & Smale, 2009) Sawadogo found that sorghum yields on treated fields ranged from 975-1.600 kg/ha while yields on non-treated fields varied between 450 and 650	Thank you for the many interesting suggested references. However, most of them pertain to issues of adaptation (covered in chapters 14-16) or the rural chapter (9) or the food chapter (7). We are obligated to stick to our plenary-approved outline and it informs our story line and selection of evidence.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
25.2	73538	13	0	0	0	0	<p>long-term yields on treated fields ranged from 975–2,000 kg/ha while yields on non-treated fields varied between 150 and 650 kg/ha. (Sawadogo, 2011) When farmers used micro-dosing in conjunction with water harvesting, yields increased up to 2,000 kg/ha. (Sawadogo) In essence, treating these lands, which had been hit hard by the droughts of the 70's and 80's, with water harvesting technologies created natural capital. (Rockstim, Barron, &amp; Fox, 2003) ["Using improvement and replication of indigenous soil and water conservation practices across the Central Plateau of Burkina Faso. Rehabilitation of at least 200,000 hectares of degraded land enables farmers to grow cereals on land that had been barren and intensify production through developing agroforestry systems. Additionally, rehabilitation appears to have recharged local wells."] In Niger, research by Nigerien, European and US researchers found that between 1984 and 2011, Nigerien farmers had treated about 5.0 million hectares with Farmer-managed Natural Regeneration (FMNR), a form of agroforestry. (Reij, Tappan, &amp; Smale, 2009) Reij, et.al, reported that it was estimated that FMNR increased yields by an average of 100 kg/ha which would have contributed 500,000 tons to Niger's cereal crop. In addition, researchers found that communities that practiced FMNR were better able to cope with drought-related crop failure as they were able to sell tree crop products, such as fuelwood and high-quality browse (animal feed). As perennials, tree crops were less susceptible to drought than annual crops and much less likely to experience a total crop failure. FMNR made a difference in peoples' outlook with respect to drought: In a survey conducted by Nigerien researchers following the 2005 drought, 70% of the villages that practiced FMNR thought that their food security had improved, in spite of the drought, while half of the villages that did not practice FMNR judged that their food security was worse. (Toudou, 2006) Finally, given past conflicts over trees, range and other resources, FMNR provided reasons for farmers, herders and other resource users to come together to make and carry out management rules. Professor Yamba Boubacar of the Centre R�gional d'Enseignement Sp�cialis� en Agriculture (CRESA), reported that this collaboration across user groups and the establishment and enforcement of these rules reduced conflicts and allowed groups like herders to have more control over how they managed pasture lands. (Yamba, 2006) In looking across the above examples, dryland farmers in the Sahel coped with climatic shocks, and even improved productivity, by adopting technologies and systems that did the following, which could be turned to principles: --Increased rainfall-use efficiency by stopping rain on fields where it fell and increasing infiltration; --Increased soil organic matter which both retained soil moisture and increased fertilizer-use efficiency; --Use fertilizers in tandem with the above (not before) to push yields to the next plateau; --Diversified their farming systems that included annual staples (e.g., grains) and perennial crops (tree crops) that reduced the potential for experiencing a complete crop failure; --Took advantage of new and additional opportunities created by a recharged water table (e.g., dry-season irrigation). Bibliography Batiano, A., Hartemink, A., Lungu, O., Maimi, M., Okoth, P., Smaling, E., et al. (2006). 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Ouagadougou, Burkina Faso: Institut de l'Environnement et de Recherches Agricoles. Sawadogo, H. (2011). Using soil and water conservation techniques to rehabilitate degraded lands in northwestern Burkina Faso. International Journal of Agricultural Sustainability , 120-128. Stroosnijderi, L., &amp; Hoogmoed, W. (1984). Crust formation on sandy soils in the Sahel, II Tillage and its effect on the water balance. Soil &amp; Tillage Research, 4 , 321-337. Toudou, A. (2006). Impacts des Investissements dans la Gestion des Ressources Naturelles au Niger: Rapport de Synth�se, Premi�re Version. Niamey, Niger Republic: Centre R�gional d'Enseignement Sp�cialis� en Agriculture (CRESA). Wood, S., Sebastian, K., &amp; and Scherr, S. (2000). Pilot Analysis of Global Ecosystems-Agroecologicalsystems. Washington, DC: World Resources Institute. Yamba, B. (2006). Rapport d'etude sur le foncier, les institutions locales et l'evolution de la pauvrette. Niamey, Niger: CRESA. Yamba, B. (2006). Rapport d'etude sur le foncier, les institutions locales et l'evolution de la pauvrette. Ouagadougou, Burkina Faso: The Inter-State Committee to Combat Desertification (CILSS). (UNITED STATES OF AMERICA)</p>	
25.3	73538	13	0	0	0	0		



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26	73539	13	0	0	0	0	While higher food prices can be an opportunity for small farmers, price volatility hurts both consumers and producers. The extreme range of price variation, "especially upward", hurts net food consumers. Moreover, the unpredictability of prices inhibits planning, makes investment risky and discourages farmers from producing more for the market. This represents a lost opportunity for farmers to raise their incomes, and for countries to develop the potential of smallholder agriculture to contribute to global food security (UNITED STATES OF AMERICA)	We have rephrased this sentence and now acknowledge net food consumers.
27	73642	13	0	0	0	0	Figure 13-3: Seems like there should also be a "Wheel of opportunity" where are the economic and nutritive gains of harvest? Is all labor a "hardship"? (UNITED STATES OF AMERICA)	We have changed the title and caption for this figure (no longer "wheel of hardship").
28	77571	13	0	0	0	0	Poverty and Development section needs to be expanded (Malini Nair, Indian Institute of Science)	The entire chapter deals with poverty. Following the plenary-approved outline, we discuss development in section 13.4. Sadly, we do not have more space to explore development.
29	80295	13	0	0	0	0	Issues concerning land fragmentation and land use changes would be appropriate to consider in this chapter as these have impacts on livelihoods and poverty. I would suggest to consider a review of " Land use change patterns and livelihood dynamics on the slopes of Mt. Kilimanjaro, Tanzania- By Eija Soini" which was found at <a href="http://www.sciencedirect.com/science/article/pii/S0308521X05000995">http://www.sciencedirect.com/science/article/pii/S0308521X05000995</a> (Tek Gurung, Freelance consultant)	We leave this discussion to Chapter 9 (rural chapter).
30	80478	13	0	0	0	0	This is a very impressive draft, considerably strengthened from its previous version. While improved, a shortcoming, in it has also become clearer: this is a report that appears to portray what academic and applied researchers have to say about the poor, their situation, and so on. The voices of the poor, however, are seldom directly heard from in this account. Many civil society organizations, community based organizations, and so on nowadays exist where people from impoverished and threatened communities can provide insights about their priorities and conditions. However, these were apparently considered as lacking in merit or rigor. Perhaps a footnote could acknowledge that such sources exist, but were not explored. Furthermore, the authors may want to clarify whether having a low cash income is the same as poverty, which in many cultures in Africa, for example, has a moral as well as social connotation (for example, see Iliffe's seminal "The African Poor." Poverty is taken here to be a category that is imposed on people rather than reflecting their own self-defined status (or the social realities of their situations). To say that low-income people are highly vulnerable to climate change is probably more illuminating than using the terminology and ideological baggage of "the poor." (A. Peter Castro, Maxwell School, Syracuse University)	Thank you! We try to incorporate the voices of the poor where we have a good description of climate change, climate variability, or extreme events, as we are obligated to discuss detection and attribution. We also include non-peer reviewed (gray) literature and state this explicitly at the beginning of 13.2.
31	80479	13	0	0	0	0	The relevance of the sustainable livelihoods approach is largely taken for granted (I wondered whether DFID paid for the report's production?). It might contribute to a more balanced outlook if some of the analytical limitations of SLA are acknowledged, such as operationalizing and measuring the different forms of capital. (A. Peter Castro, Maxwell School, Syracuse University)	We now acknowledge more limitations to the sustainable livelihood framework, incl. 2 new references.
32	80480	13	0	0	0	0	I commend the authors for trying to deal carefully with the notion of poverty. Nonetheless, the report still gives an overall impression of "the poor" – a generalized group of victimized people. In reality, climate change policymakers and researchers need to understand that within all communities there will be gradients of prosperity and poverty. (A. Peter Castro, Maxwell School, Syracuse University)	We explain what we mean by "the poor" in the first paragraph of 13.1. and replace it with other wording where possible in the text.
33	80481	13	0	0	0	0	There is a surprising lack of attention to the knowledge of the poor – perhaps link it closer to regional reports such as Africa which provide some coverage. Similarly, there is a lack of attention to social mechanisms such as reciprocity and sharing between households in different circumstances which foster group survival. (A. Peter Castro, Maxwell School, Syracuse University)	The knowledge of the poor is better explored in chapters 12 (the section on culture in the context of human security) and the adaptation chapters (14-16). We acknowledge reciprocity and sharing under social assets (13.2.1.1) and in the gender box (13.2.1.5).
34	80482	13	0	0	0	0	In my experience economists do not give a second thought to using terms such as 'poverty traps,' but people who have low incomes often find such terminology demeaning, and lacking in explanatory value. Again, the report may want to differentiate between "low income people" and "poor people" – these are not identical. (A. Peter Castro, Maxwell School, Syracuse University)	We use a definition of poverty that recognizes multiple deprivations. We define poverty trap as exceeding low income. The term is important for the chapter as it depicts the seriousness of impacts climate change can have or contribute to, even if climate changer itself plays a minor role.
35	81041	13	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 13 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 corrected all references to the best of our abilities.

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36	81104	13	0	0	0	0	The chapter team may wish to use the LIC, MIC and HIC framing consistently across the chapter. (Monalisa Chatterjee, IPCC WGII TSU)	Done.
37	81105	13	0	0	0	0	The chapter builds the conceptual background very well, authors may wish to add more case studies to illustrate specific points where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	We have added more case studies and evidence throughout the text, with a particular eye on 2012 and 2013 publications.
38	81106	13	0	0	0	0	It may be useful to add detailed ES findings on poverty traps, livelihood trajectories and differential impacts. (Monalisa Chatterjee, IPCC WGII TSU)	We included short statements on livelihood trajectories, poverty traps, and multidimensional poverty, and differential impacts.
39	81128	13	0	0	0	0	The chapter has rich discussions on several interdependent topics. For FGD preparation, authors may wish to synthesize key messages in tables as 'finding rich capsules' that people can use from this assessment. (Monalisa Chatterjee, IPCC WGII TSU)	We provide one new table (on risks) and one expanded table on gendered climate experiences that allow us to capture some of the rich capsules.
40	82594	13	0	0	0	0	1) Overall -- The chapter team has developed a robust and compelling second-order draft. Bravo. In the final draft, the chapter team is encouraged to continue its prioritization of effective figures, clear writing, compact and rigorous assessment, and high specificity. (Katharine Mach, IPCC WGII TSU)	Thanks, we have tried our best.
41	82595	13	0	0	0	0	2) 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 tried our best.
42	82596	13	0	0	0	0	3) 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)	We have incorporated more WGI findings, esp. relevant to heat waves/heat stress.
43	82597	13	0	0	0	0	4) 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 tried our best.
44	82598	13	0	0	0	0	5) Characterization of future risks -- In characterizing future risks related to livelihoods and poverty, 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 these risks be reduced through adaptation or development, in the near-term and 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 socioeconomic/climate scenarios) and for the era of climate options (the 2nd half of the 21st century and beyond). This point is especially relevant to section 13.2.2. 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 have included our own risk table (Table 13-2), under section 13.2.2.
45	82599	13	0	0	0	0	6) 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 characterization 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 relevant to date, and how interactions among mitigation, adaptation, and sustainable development may occur. (Katharine Mach, IPCC WGII TSU)	We have tried our best! We do specify future risks in our risk table, but we do not talk about the relevance of adaptation experiences to date. We refer to chapter 14-16 on most adaptation practices and challenges. We refer to Ch 20 for the interaction between mitigation, adaptation, and sustainable development.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
46	84647	13	0	0	0	0	GENERAL COMMENTS: I congratulate the author team for a well-written 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. In both the executive summary and the text, please take care to differentiate statements about climate variability and climate change, or where both are relevant. For example, if a statement asserts sensitivity to climate change, it is not always clear to what extent this is a statement about impacts of changes in climate conditions that have already been observed, impacts that are anticipated based on identified sensitivities/vulnerabilities to climate variability, and/or specific projections of future impacts of climate change. In particular, the phrase "weather events and climate," which is used frequently, bundles them together, but often in the context of supporting statements about climate change specifically. It would be useful to communicate these nuances to the extent possible based on the available evidence, and I have tried to point out specific places where this is relevant in my comments. (Michael Mastrandrea, IPCC WGII TSU)	Thanks! We now explain our umbrella term "weather events and climate" but we do not use it in the ES to avoid misinterpretation or confusion in the summary documents.
47	84648	13	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 13, this includes presentation of observed impacts and vulnerabilities in section A.i and Box SPM.3/TS.4, sectoral risks in section C.i and Box SPM.5, climate-resilient pathways in section D.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 13 and other chapters at LAM4? (Michael Mastrandrea, IPCC WGII TSU)	We have slightly revised our ES in light of what is most pertinent in the summary documents (see dropping of "weather events and climate" above). We have provided valuable input to summary products (the impacts table, key risks and vulnerabilities, the multidimensional vulnerability box, as well as 2 cross-chapter boxes (gender and heat stress). All required careful coordination with other chapters and the TSU.
48	85163	13	0	0	0	0	The explanation about the relationship between livelihood and poverty should be add. (Hongmei Xu, National Climate Center,CMA)	We address this important linkage in section 13.1. and in FAQ 2.
49	85213	13	0	0	0	0	The real threat to poverty is the failure to supply economical electricity supply because of a false belief in climate change and the increase in food prices because of biofuels. (Vincent Gray, Climate Consultant)	Good point. We have short sections on biofuels and energy supply and linkages to poverty/poor people.
50	62900	13	2	27	0	0	The word 'makes' is suggested to be changed to 'make'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Done.
51	81123	13	2	27	12	34	Psychological impacts seems repeated here. (Monalisa Chatterjee, IPCC WGII TSU)	Yes, over 11 pages, psychological impacts come up several times, esp. in the context of gender and indigenous or other marginalized groups (2 important aspects we were asked to address in the plenary approved outline).
52	81107	13	2	30	2	30	Threat multiplier is an useful concept and authors may wish to use this more extensively in the chapter. (Monalisa Chatterjee, IPCC WGII TSU)	We use the concept again in 13.1.12, the synthesis (13.5), and FAQ 13.2.
53	63605	13	2	30	2	31	The statement "Climate Change constitutes an additional burden to the rural and urban poor. It acts as a threat multiplier, often with negative outcomes for livelihoods (very high confidence, based on high agreement, robust evidence)." is policy relevant and should be inserted at SPM P 13 L 6 (Source: TS P 17 L 40-41). The statement emphasizes the exposure and vulnerability particularly of rural and urban poor, and underlines the conjunction of climatic and non-climatic drivers. Statement is meaningful (very high confidence) to pick out social equity as a central theme of adaptation. (GERMANY)	This statement is indeed included in the latest draft of the SPM, in section A.i.
54	84649	13	2	30	2	39	The phrasing makes it unclear to what extent these statements pertain to impacts of climate change (or climate variability?) that have already been observed, impacts of climate change that are expected based on identified sensitivity/vulnerability to climate variability, and/or specific projections of future impacts of climate change. Please clarify as much as possible. (Michael Mastrandrea, IPCC WGII TSU)	As discussed at LAM4, we use present tense for observed impacts and future tense for projected impacts.
55	84650	13	2	32	2	34	The impact of climate change is on patterns of extremes, which right now is not explicitly stated. Subtle shifts in trends seems to refer to changes in average climate, while extreme events are climate variability (influenced by a changing climate). If this sentence is to support the bold finding about climate change, it needs to be clear how evidence about effects of extreme events support conclusions about climate change. (Michael Mastrandrea, IPCC WGII TSU)	We rephrased this bullet to say "Climate-related hazards, including subtle shifts and trends to extreme events".



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
56	82600	13	2	32	2	42	I am wondering if it could be helpful to be more explicit with verb tense used in these sentences. For example, I believe the chapter team is asserting that these patterns have already been observed, are currently happening, and may continue to happen in the future. In the current wording, interpretation is not crystal clear--some appear to be phrased more as sensitivities, rather than as observed occurrences or as expected future risks. The author team may wish to carefully consider what it is hoping to communicate in each bullet, perhaps revising verb tense accordingly for some of the statements. For the 1st statement, I am also wondering if slightly clearer wording is possible in place of "ranging from subtle shifts in trends to extreme events." For example, does the author team mean "ranging from extreme events to trends in mean conditions"? (Katharine Mach, IPCC WGII TSU)	See responses to #54 and 55 above.
57	58963	13	2	33	2	33	"Food insecurity" – food production more appropriate as food security linked to a complex of other factors, whereas the attribution of reduced production due to e.g. drought or flood is more convincing. (Lindsay Stringer, University of Leeds)	We do mean food insecurity. Food production is a neutral term and doesn't convey negative impacts on livelihood assets as all the other examples in this bullet do.
58	73540	13	2	33	2	34	The impacts described are not livelihood assets but are indeed important impacts. Deleting the words "assets" on line 33 solves this issue. (UNITED STATES OF AMERICA)	Done.
59	84651	13	2	33	2	34	Food insecurity and loss of sense of place are associated with medium evidence in the underlying chapter text. Please check the consistency with the presentation here (where the implication is that they are associated with the bold confidence and agreement/evidence statement). (Michael Mastrandrea, IPCC WGII TSU)	Yes, we have adjusted the confidence at the level of our bold statement to medium evidence and high agreement.
60	84652	13	2	34	2	34	The relevant discussion of climate policies all is characterized by limited evidence in the chapter text. Please consider the appropriate level of confidence for an assertion of a connection between climate policies and poor people's lives, given the underlying discussion. Currently, the implication is "very high confidence" per the bold finding. (Michael Mastrandrea, IPCC WGII TSU)	We have removed "climate policies" from this statement.
61	73541	13	2	35	2	36	These "shifts in rural livelihoods such as from crop-based to mixed livestock and forest-based livelihoods" may be an example of an adaptive strategy that could actually increase resilience and even income, and therefore it doesn't seem to fit well in this section as an example of negative impacts on livelihoods. It may have adverse results and increase poverty, but not necessarily. (UNITED STATES OF AMERICA)	We have revised this bullet and now stress "mixed and negative outcomes".
62	84653	13	2	40	2	42	Is this a general assertion about all regions of the world, or specifically about low-income countries? If the latter, it would be clearer to move "in many low-income countries" after "unrecognized." In addition, it would be useful to be clearer about who they are unrecognized by. In the case of extreme temperatures at least, I assume you mean those conducting historical data analyses, decisionmakers, or other external parties, rather than those who actually experience the conditions. (Michael Mastrandrea, IPCC WGII TSU)	We have provided more detail here, now referring to standard climate observations and, yes, they are the norm all over the globe (hence standard).
63	61332	13	2	42	2	42	This is excellent - one might add that the very poorest exist precariously, are highly vulnerable to shocks, are often indebted. Minimal changes like increased disease, changes to seasonality and subtle changes to ecological niches can have much greater impacts on their livelihoods than on other groups (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Thanks! We have tried hard to convey the risk of small additional or cumulative shocks (see also Figure 13-3 with illustrative examples.
64	57674	13	2	44	2	47	The confidence level is unwarranted. Carbon dioxide fertilization will drive down food prices over the next few decades. This raises real income for the urban poor. (Richard S.J. Tol, Vrije Universiteit Amsterdam)	We stick to this confidence level, based on the large evidence in the literature to the contrary.
65	84654	13	2	44	2	47	Again, the phrasing makes it unclear to what extent these statements pertain to impacts of climate change (or climate variability?) that have already been observed, impacts of climate change that are expected based on identified sensitivity/vulnerability to climate variability, and/or specific projections of future impacts of climate change. Please clarify as much as possible. (Michael Mastrandrea, IPCC WGII TSU)	We still use the present tense, hence our statement refers to what has been/is already observed. We refer to both climate change and climate variability now in the bold statement.
66	85164	13	2	44	2	53	There are not enough publications to support the opinions expressed in the paragraph with the level of confidence. It is recommended to give a lower confidence. (Hongmei Xu, National Climate Center,CMA)	We cite abundant literature in the 13.1 and 13.2. that back up our best judgment of the confidence level.
67	63606	13	2	47	2	47	After "vulnerabilities" add "on people and communities". Ratio: it should be said clearly what or who is vulnerable. (GERMANY)	We did not add your suggested extension. This is all about people.
68	79572	13	2	48	2	29	Unclear what the phrase 'intersection of gender, age, race, class, caste, indigeneity and (dis)ability' means - (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	We rephrased this part to " intersection of multiple dimensions of discrimination based on ...."

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
69	63607	13	2	48	2	48	The term "gender" should be replaced by the term "sex". Hence "...the intersection of sex, age, race..." (see also comment on TS p. 5 line 47 and SPM p. 3 line 51). (GERMANY)	No, we retain the term gender. We do mean gender, and we have an explicit mandate through the plenary approved outline to address impacts on gender (and the same is true for Ch 11 and 12).
70	73542	13	2	48	2	48	The introduction mentions "socially and geographically marginalized people." This concept should be defined in the text. Additionally, geography is destiny and the chapter is rather tacit on how zoning (or lack thereof), spatial planning, administrative boundary setting, demarcation of commons, and other geographically determined areas are underlying factors which in much of the world (due to their manipulation, lack of enforcement, elite capture and or other mechanisms) undermine both the livelihoods of the poor and the resilience of important ecosystems. Failure to address "geography" in its legal, economic, administrative and ecosystemic complexity detracts from the outcomes of many of the climate-livelihood interventions that are outlined in the continuation of the Chapter. (UNITED STATES OF AMERICA)	We specify what we mean by marginalization in 13.1.3. The plenary approved outline requests that we address marginalized groups. Unfortunately, the discussion of geography as destiny is beyond the scope of this chapter.
71	69171	13	2	50	2	50	Should the reference to [13.1.2.5] not be [ 13.2.1.5]? (NETHERLANDS)	Corrected.
72	69172	13	2	50	2	50	The chapter reference [13.1.2.5] is a wrong reference list and not found in the main Chapter. (NETHERLANDS)	Corrected.
73	84655	13	2	50	2	50	The line of sight should be 13.2.1.5, rather than 13.1.2.5. (Michael Mastrandrea, IPCC WGII TSU)	Corrected.
74	84656	13	2	53	2	53	13.1.2.3 also appears relevant to this bullet. (Michael Mastrandrea, IPCC WGII TSU)	Added.
75	82601	13	3	1	3	1	In place of "positive impacts," would it be clearer to say "benefits of effective responses to climate change"? (Katharine Mach, IPCC WGII TSU)	We retain positive impacts (as a counterweight to often discussed negative impacts). Effective responses in themselves are likely to present benefits. We are after beneficial consequences of climate change, not benefits from responses (that, we hope, is covered in Ch 14-16).
76	61333	13	3	1	3	3	In the executive summary the point that "very scarce evidence" on positive impacts of climate change on the poor does not seem to include agriculture impacts (crops) (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We refer to increase in crop yields, but also cross-reference chapter 7 that deals with food and yields and the rural chapter. Our task is to assess impacts on people first, and only indirectly through yields and food prices.
77	84657	13	3	1	3	3	It is not clear that the topics raised here are best described as positive impacts of climate change. Instead, they seem to be benefits of policies/responses to either climate change or extreme events. In the chapter text, flood preparedness and institutional change are all discussed in the context of responses to Hurricane Mitch, and collective action and social asset accumulation are discussed in the context of climate change. Finally, section 13.1.3 does not appear to be relevant, but 13.1.1.2 does. (Michael Mastrandrea, IPCC WGII TSU)	We have slightly revised our list of examples of positive impacts, but we don't have a whole lot of evidence to choose from.
78	57675	13	3	5	3	5	There is no reason to assume that climate change will create new poor. The literature reviewed in Chapter 10 is unanimous that climate change would slow down economic growth, but not reverse it. (Richard S.J. Tol, Vrije Universiteit Amsterdam)	We simply disagree here. The literature reviewed in Ch 13 provides medium evidence and medium agreement that climate change will create new poor. We acknowledge a broad range of projections, incl. disagreement in the literature, although most of our sources do point toward new poor, even if they don't show up in national poverty head counts.
79	84659	13	3	5	3	14	Is there a specific timeframe intended for these forward-looking statements? Are there any distinctions that can be made between projections over the next few decades vs. the end of the century, based on the available literature? (Michael Mastrandrea, IPCC WGII TSU)	Time frame now included (up until 2100).
80	84658	13	3	6	3	7	"Most severe" could either be read as meaning that "most of the severe impacts of climate change are projected for..." with the implication that severe impacts are not projected for other areas, or that of all the severe impacts of climate change the "severest" are projected for the identified areas. Please clarify. (Michael Mastrandrea, IPCC WGII TSU)	Ok. We have changed this part of the sentence to "the majority of severe impacts".
81	84660	13	3	8	3	8	Here is another example where the bold sentence is about climate change, while the phrase "weather events and climate" is more ambiguous. Do you mean climate change and its influences on weather events? (Michael Mastrandrea, IPCC WGII TSU)	We have dropped the umbrella term "weather events and climate" from the ES.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
82	60656	13	3	9	3	9	The reference to 13.2.2.4 seems insufficient to justify the statement that new poverty traps are particular to urban areas; suggest deleting the last phrase ", the latter particularly in urban areas" (Haroon Kheshgi, ExxonMobil Corporate Strategic Research)	We do not mean that new poverty traps are particular to urban areas. We means that there will be new poverty traps, especially in urban areas, and we provide a medium confidence level with this statement (valid for the entire bold statement and all sub-bullets).
83	58964	13	3	13	3	14	"High inequality" needs to come earlier in the sentence, somewhere before "above all in sub-Saharan Africa", in order for the meaning and flow to be clear. (Lindsay Stringer, University of Leeds)	We have reworded this sentence for better flow,
84	73543	13	3	13	3	14	Many rural households are net food consumers (not net food producers) and are also impacted negatively by rising food prices. There are several sections of this chapter that overlook this reality and focus exclusively on the impact of higher food prices on urban households. (UNITED STATES OF AMERICA)	See response above, and we refer to both rural and urban areas.
85	73544	13	3	16	3	17	This statement is misleading and at a minimum should be changed to "Current policy responses MAY..." as the adaptation evidence appears to be limited and only applies to those responses already evaluated - not all policy responses. (or "projections show that policy responses ... could result in mixed..." may actually be best) (UNITED STATES OF AMERICA)	The text in the ES has been revised ("will result in mixed, and in some cases even detrimental, outcomes for poor and marginalized people") as well as the supporting sections in 13.3.1.1 and 13.3.1..2. We have clarified that we assess the CDM and REDD+ policies explicitly from the point of view of people living in poverty. the TSU asks us to avoid statements that include "may".
86	84661	13	3	16	3	17	This finding gives the implication that policy responses are generally bad for poor and marginalized people no matter what, while the chapter text provides a more nuanced/mixed/preliminary view. For example, section 13.3.1 supports the statement that mitigation policies are often detrimental to poor people and their livelihoods, but also says that many synergies between mitigation policy and poverty alleviation have been identified in the literature, with limited evidence of positive outcomes. Are there ways to communicate both how such policies could be detrimental and what principles could make them more beneficial? (Michael Mastrandrea, IPCC WGII TSU)	We now provide a more nuanced statement. Our use of "mixed" captures the limited evidence on positive impacts of mitigation responses. We have added that there are many potential synergies. We have also addressed what could increase the likelihood of positive outcomes for the poor in the two last bullets.
87	69173	13	3	16	3	19	This text is unbalanced. Section 13.3.1 also highlights the positive effects of mitigation policies on the poor and their livelihoods. Deletion of 'and potentially detrimental' would solve this (NETHERLANDS)	See response to #85. Also, we have added the term "current" to policy responses, indicating that we cannot make an evidence based conclusion about future effects of policy responses, especially since mitigation policies might change in their form.
88	73545	13	3	16	3	19	This statement's focus on only the negative impacts of mitigation efforts does not reflect the potential for both positive and negative impacts. It is strongly debateable whether there is high agreement on this topic. Although the full text was also unjustifiably slated towards the negative impacts of mitigation measures, this summary fails to even accurately summarize the two sides of this issue which were included in the full text, and does not reflect the range of available peer reviewed literature and reports on this subject. A more accurate summary would include a statement on the potential for positive impact for poor and marginalized people, as well as the potential for harm. While the negative impacts have been documented in some cases such as the impact of biofuel production on food prices, in the case of CDM, REDD and VOC for the most part there is lack of clear evidence of either clear or consistent benefits or harm to poor and marginalized people at this point in time. Section on Adaptation policies also notes that there are few rigorous studies that analyze impacts so this part of the statement does not appear to be well supported by the literature (also there are a limited number of adaptation policies that are discussed). (UNITED STATES OF AMERICA)	See response to #85.
89	63020	13	3	16	3	24	This statemet about REDD+ ,CDM and biofuels is hgly unaccurate and needs revision. There are cases that report positive and negative impacts, but there is no serious and systematic review on SD impacts of these mecanisms and mitigation opions. A more differentiated statement shall be done clarifying under wich circumstances these mechanisms have brought positive as well as negative impacts on ivelihoods, smallholders and/other specific social groups. If an example will be given here, take a look at least to what is said in ch.11 WG III!! The statement in the ES as well as the corresponding section need a deep review and a more accurate presentation of existing results (Carmenza Robledo Abad, HELVETAS Swiss Intercooperation)	See response to # 85. We stress preliminary negative impacts and mixed impacts.
90	82602	13	3	17	3	17	"low evidence" should be "limited evidence" in the terminology of the uncertainties guidance. (Katharine Mach, IPCC WGII TSU)	Corrected.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
91	70450	13	3	18	3	18	Delete "such as the CDM and REDD+" and add "Some..." at the beginning. There is no evidence that the policy instruments CDM and REDD+ have negative impacts on the poor. For the CDM, there is evidence that the projects have no strongly beneficial impacts on the poor, but outright negative effects are rare exceptions. See TERI (2012): Assessing the Impact of the Clean Development Mechanism on Sustainable Development and Technology Transfer, New Delhi, and also the assessment (Axel Michaelowa, University of Zurich)	See response to #85.
92	61334	13	3	18	3	19	The assertion in the summary that mitigation efforts such as ("as" should be inserted) CDM and REDD+ and land acquisition for food/biofuel show negative impacts on the poor should be carefully checked in literature. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	This section of the Es has been revised, based on additional literature published since the submission of the SOD that strengthens the evidence base in favor of the statement.
93	84662	13	3	18	3	19	Indigenous people and smallholders are not mentioned in the chapter discussion of all of the mitigation efforts listed here, which is currently implied. Please clarify this point in line with the underlying chapter text. (Michael Mastrandrea, IPCC WGII TSU)	We have added references to indigenous people in the text, and hence retain both - indigenous people and (women) smallholders with supportive evidence in the text.
94	82603	13	3	19	3	22	Where "preliminary negative impacts" are mentioned on line 19, are there any positive or mixed impacts that it would be relevant to acknowledge? Similarly, it could be helpful to be explicit about the nature of the "effects" mentioned on line 22--presumably "positive effects" are meant? (Katharine Mach, IPCC WGII TSU)	We have changed this section of the ES in order to make a clear distinction between CDM and REDD+ on the one hand and biofuels on the other. In addition, we have mentioned the many potential synergies. The last two bullets address the barriers for these synergies to be realized - inequality needs to be addressed.
95	79573	13	3	23	3	23	statement that 'unless inequalities are removed and needs for equity among the poor and non-poor met' - seems too definitively worded - will inequalities ever be entirely removed? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The term, " removed" has been replaced with "addressed. The revised statement now is as follows: "unless inequalities are addressed..."
96	84663	13	3	23	3	23	The support in 13.3.1 for this statement is not clear. (Michael Mastrandrea, IPCC WGII TSU)	We removed reference to 13.3.1.
97	85165	13	3	26	7	45	There too many content do not match the topic of climate change that enlarge Section 13.1. it is recommended that the drastic reduction. (Hongmei Xu, National Climate Center,CMA)	Since this is the first time the IPCC has on chapter on livelihoods and poverty, the4se concepts and their complexity need to be introduced to the reader.
98	69174	13	3	31	3	32	The generalisation of urban and rural poor is too vague. The chapter does not fully describe the complexities of the observed impacts of weather events and climate on livelihoods and poverty and impact from 2015 - 2100 but gives evidences of simulations and empirical studies. see Chapter 13, page 8 line 1- 4. (NETHERLANDS)	This sentence has been slightly modified to "rural and urban poor people", and we expand what we mean by "the poor", "up until 2100". We describe the complexities based on a comprehensive assessment of the literature, including both evidence from observations and simulations.
99	62901	13	3	51	0	0	Please see if the words 'to be' can be deleted. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Deleted.
100	84664	13	4	2	4	8	Here is another example where there seems to be bundling of climate change and climate variability per my general comments. The last sentence of the paragraph focuses on climate change, but earlier sentences use the "weather events and climate" phrase and discuss climate-sensitive livelihoods. (Michael Mastrandrea, IPCC WGII TSU)	We introduce the umbrella term for "weather events and climate" here.
101	62902	13	4	4	0	0	Please if the word 'shaping' can be changed to 'reshaping'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Changed.
102	70561	13	4	5	4	6	Rain-fed farming activities are particularly sensitive. I would substitute "smallholder agriculture" with "rain-fed smallholder agriculture". See for example Gentle et al. (2012), already cited in this chapter (Andrea Milan, United Nations University Institute for Environment and Human Security)	Changed to "rain-fed smallholder agriculture".
103	77117	13	4	6	4	8	This is also the case for rural areas (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	Correct.
104	81108	13	4	6	4	8	A table with some example case studies would be useful. (Monalisa Chatterjee, IPCC WGII TSU)	The case studies with the evidence follow in section 13.3. This is the descriptive background section that we try to keep as concise as possible, also with significant well-established literature pre-2007.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
105	73546	13	4	7	4	8	This sentence seems vague with no references cited for support. (UNITED STATES OF AMERICA)	The sentence has been slightly modified. References for observed evidence follow in section 13.2.
106	73547	13	4	8	4	8	Climate change may also affect these households indirectly through increased climate-driven migration from rural to urban areas. (UNITED STATES OF AMERICA)	Migration has been included in this sentence.
107	58266	13	4	11	4	23	13.1.1.1 the title in this part is "dynamic livelihoods and trajectories". However, there is no content relating to dynamic change. So the content does not conform to title, suggesting revised. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Dynamic is part of the first sentence. Dynamism is also implied in the words flexibility, seasonality, and trends. The point here is to understand livelihoods over time, not just a one-point-in-time snapshot.
108	73548	13	4	13	0	0	The authors should define or describe what is meant by the phrase "livelihood lens". (UNITED STATES OF AMERICA)	We now clearly describe what we mean by a livelihood lens.
109	58965	13	4	16	4	16	"Force" – this is a strong term. Replace with a weaker one like "push" or "move" (Lindsay Stringer, University of Leeds)	Replaced with "push".
110	63608	13	4	29	4	29	Also mention economic stressors (such as rising food prices). (GERMANY)	We now mention "economic" in this sentence.
111	81109	13	4	35	4	36	An example will be very useful here. (Monalisa Chatterjee, IPCC WGII TSU)	The examples come later, in section 13.2.
112	73549	13	4	37	0	0	Please give examples for what are considered "global or regional processes." (UNITED STATES OF AMERICA)	The examples for global and regional processes are depicted in Figure 13-5.
113	73550	13	4	41	4	43	In addition to inter-household issues, there are also import intra-household impacts that may need to be considered. (UNITED STATES OF AMERICA)	Within households is now acknowledged.
114	73551	13	4	43	4	46	This may also exacerbate existing inequalities, including gender inequalities (UNITED STATES OF AMERICA)	We now mention "exacerbated inequalities", but we keep the reference for gender until we get to the inequality section (13.1.3).
115	77118	13	4	51	6	17	"Section 13.1.2. Dimensions of Poverty". This section is not very clear. It lacks a definition of poverty at the beginning and instead goes straight into more operational aspects of poverty such as its measurement. Consider that in coherence with the previous section, firstly add the section 13.1.4. Interactions between Livelihoods, Poverty, Inequality, and Climate Change as an introduction to the topic, then stress a definition of poverty under the livelihoods framework and later discuss measurement, current trends and any other "dimensions" of poverty. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	There is not one single definition of poverty, hence our effort to explain different approaches to conceptualizing and measuring it. Since we are asked to be inclusive of a variety of approaches, it is not appropriate for a comprehensive assessment to only focus on poverty under the livelihoods framework, especially since it has major weaknesses (see 13.1.1.1). We retain the logical order of first describing the concepts of livelihoods and poverty, and inequality), and only toward the end of 13.1. discuss how these 3 interact with climate change. This is a more logical sequence and easier to understand for the reader.
116	62906	13	5	0	0	0	Most of the references quoted pertain to pre-AR4 period, i.e. before 2007. For example, on page 5 alone, 13 out of 36 references quoted (36%) are of pre-2007 period. It is understood that references in AR5 should relate, as far as possible, to post AR4 period. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Since this is an overview section that conveys the understanding of new concepts to the IPCC, we rely on well-established literature in the fields of livelihood and poverty studies, several of them indeed pre-2007. Please remember too that this is the first time the IPCC has a chapter on livelihoods and poverty. We rely much more heavily on post 2007 literature for our assessment of climate change impacts and impacts of climate change responses, capturing most recent evidence.
117	62903	13	5	1	0	0	Please check if the phrase 'reversing it' can be replaced with 'its reversal'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Done.
118	73552	13	5	2	5	3	Suggest that the authors define the term "agency" in this context as it might not be clear to all readers. (UNITED STATES OF AMERICA)	Agency is now defined, with one well-cited reference.
119	73553	13	5	9	5	12	This list of multidimensional deprivations is far from complete, but does not identify the list as examples (no use of such as, for instance, etc.). If such a list is to remain, it should either be expanded to include other deprivations, such as access to education, credit, etc. or make it clear that these are only a subset of impacts related to health (UNITED STATES OF AMERICA)	This list is not meant to be complete. We also use "such as" to denote examples.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
120	62904	13	5	14	0	0	Please see if the phrase 'on the world' can be changed to 'to the world'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Impacts requires "on" the world, but the last part of the sentence has been modified to make the wording smoother.
121	63609	13	5	17	5	19	Access to different types of assets, power, and inequalities would be further important terms in this regard. They are partly included in the current wording, but in my understanding the proposed terms would be clearer and easier to understand. Please insert "... relational poverty, produced through access to different types of assets including power and through inequalities within societies (Sen, 1976; ...)." (GERMANY)	Relational poverty goes beyond access to assets and power. See lines further down in the same paragraph.
122	63610	13	5	23	5	23	The MDGs mentioned here come somehow out of the blue, as they have not been introduced before. And when the report will be published in 2014, the MDGs are already nearly history, so I am not sure if it makes sense to refer to them. Please insert: "... slow down the achievements of international development efforts such as outlined, e.g., in the 2000 Millennium Development Goals (MDGs)." (GERMANY)	We still refer to them but adopt your suggested rewording "such as outlined in e.g. "
123	73554	13	5	24	5	25	The quote on Line 24 "encourages "mitigation, adaptation, and the development of technologies.." does not connote "market-based responses" (line 22) as is suggested. (UNITED STATES OF AMERICA)	Market tools are now mentioned at the end of this sentence.
124	73555	13	5	27	5	28	Who really considers the poor to be "undeserving with inadequate moral values"? Is this really a common construct which had required a challenge? (UNITED STATES OF AMERICA)	This is in response to a request from a previous comment by one reviewer, and yes, this is a common construct in certain academic poverty communities, hence we keep it in the text.
125	73556	13	5	38	5	38	The authors should define "income poverty." (UNITED STATES OF AMERICA)	The term "income-based measures of poverty" is now defined in the intro paragraph of 13.1., subsequently used in the text as "income poverty".
126	58267	13	5	41	5	41	The report should cite data from original literature "1695 million, close to 1.7 billion". furthermore, the "1.29 billion" can not find in original literature. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	"Close to" inserted and the subsequent number changed to "1.2 billion".
127	61335	13	5	42	5	42	Could distinguish cash poor from chronically malnourished here - risk that MPI distracts from the very poorest (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We cannot go into the intricacies of these two (and other) measures. The point here is simply to stress that the IPL misses out on other dimensions of poverty some of which are captured under the MPI. The take-away message for the reader is that understanding impacts of climate change on poverty depends very much on the conceptualization of poverty that is used.
128	84665	13	5	44	5	47	Figure 13-1 is not referenced in the text. (Michael Mastrandrea, IPCC WGII TSU)	Now referenced in the text.
129	62905	13	5	52	0	0	Please see if the 'worlds's \$1.25 poor' actually reflects 'world's < \$1.25 poor'. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	We refer to these as the "world's \$1.25 poor" (which is also standard usage in the literature) or "x many million living under \$1.25/day". Both are correct, but we don't mix them.
130	63611	13	5	52	5	53	Above you made quite an effort to explain that poverty is multidimensional, and now you work with a poverty definition that is based only on income? It might be that there are no geographic distribution statistics of multidimensional poverty available (although I doubt that), but in this case you have to explain why you use income poverty here instead of multidimensional poverty. (GERMANY)	The MPI is a new measure (developed in 2010) and hence not useful to describe shifting trends since the 1990s. We use Figure 13-1 to depict geographic differences between MPI and IPL to date.
131	63612	13	5	52	6	10	These numbers would be easier to understand and to remember if they were presented in a table. We suggest: Table instead of text. (GERMANY)	We made this section a bit more concise. Since this is background material, we didn't want to waste precious space on a table.
132	58268	13	5	53	5	53	The number in original literature is 3/4 rather than 70%. I suggest that quote the data in original literature directly. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	The >70% is from the Sumner references.
133	58269	13	6	2	6	3	Please give the source of \$2/day standard. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Both standards (\$1.25 and \$2/day) are standard. The estimates are from publications of our CA, Andy Sumner.
134	73557	13	6	3	6	41	It is not clear why the poverty reference switched from \$1.25 to \$2.00. (UNITED STATES OF AMERICA)	Both measures are used in the literature, see for instance Edward and Sumner 2013.
135	81110	13	6	8	6	10	The sentence needs rephrasing to improve clarity. (Monalisa Chatterjee, IPCC WGII TSU)	This sentence has been revised.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
136	60675	13	6	12	6	17	The fact that climate finance is focusing largely on LICs (to the neglect of MICs and HICs where most of the world's poor now reside) is a critically important observation. We have observed several cases of recent MICs (such as Namibia and now Zambia) where interest in climate financing, in particular at the bilateral level, quickly dries up despite persistent high pockets of poverty. (Sofia Bettencourt, World Bank)	Yes, we agree, this is critical.
137	73558	13	6	12	6	17	While it is true that there is a shift in poverty to MIC and HIC countries, the reality is that many of these countries also have in place publicly funded social safety nets to mitigate the impact of disasters on poor households. (UNITED STATES OF AMERICA)	This paragraph has been slightly revised and a reference to social safety nets included. Literature and language has been added which demonstrates that, despite these safety nets within HICs, groups that spend a higher proportion of their income on necessities will be disproportionately impacted economically by climate change impacts.
138	82604	13	6	15	6	15	It might be clearer to use the word "understanding" in place of "attributing" on this line. (Katharine Mach, IPCC WGII TSU)	Word changed to "assessing".
139	81111	13	6	15	6	17	Important take away point, perhaps make it more visible? (Monalisa Chatterjee, IPCC WGII TSU)	Yes, important. We come back to this point in the synthesis. We have added one more sentence to this point, but left it where it was in this section.
140	81112	13	6	22	0	0	Authors may consider adding a small box with chapter relevant definitions towards the beginning of the chapter. (Monalisa Chatterjee, IPCC WGII TSU)	No, we have decided against it. We use many definitions from the glossary (and point that out). The rest of the definitions come in the text. Part of the rationale of this intro section is to explore the complexity of these terms, and the tensions. Neither of them lend themselves to be simplified in a box. We use the text to unpack these complexities.
141	73559	13	6	33	6	41	The first sentence of this paragraph is at least superficially at odds with the rest of it on poverty traps, because it's talking about shifting in and out of deprivation, a concept which implies poverty traps are not applying -- yet there is no discussion or connection between the two. (UNITED STATES OF AMERICA)	The transition between the first and second sentence has been improved, through the word "yet" and the usage of "the most disadvantaged".
142	73560	13	6	38	6	40	The logic that people trapped in chronic poverty is a poverty trap itself seems circular. It may be helpful to revise the language to clarify the argument. (UNITED STATES OF AMERICA)	No, this is not a circular movement, and in fact an important contribution from Sachs. We have left this sentence as it was.
143	61336	13	6	41	6	41	This is excellent - to link to the next section poverty traps are often due to distributional inequalities, structural social discrimination (eg caste) etc. - should avoid implication that its just 'bad policy' (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Thanks!
144	73561	13	6	41	6	41	The last sentence should also reference the relevant discussion in chapter 12 on conflict. (UNITED STATES OF AMERICA)	Done.
145	77119	13	6	44	7	11	"Section 13.1.3. Inequality and Marginalization". This section is not very clear. It mixes climate change vulnerability literature with inequality and marginalization and indigenous populations. Consider merging this section with the section 13.2.1.5. Implications for Inequality, instead of having a section on its own (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have improved on the clarity of this section. As the 2 sections before, it provides the basic understanding of inequality and marginalization. The plenary-approved outline for this chapter requests treatment of marginalized groups, hence this separate section. It's important to stress that poverty is not the same as inequality and marginalization. section 13.2.1.5. provides evidence for inequality and marginalization in the context of climate change.
146	73562	13	6	46	7	3	This section should cross-reference the discussion in chapter 12 on climate change and social differentiation of displacement and mobility. (UNITED STATES OF AMERICA)	We do not cross-reference Ch 12 here, but later when we provide evidence related to mobility and displacement, and sense of identity.
147	73563	13	6	47	6	48	Is this statement also true for urban poor? (UNITED STATES OF AMERICA)	Yes, and we show evidence later (e.g. informal urban settlements).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
148	77120	13	6	47	6	50	The way this sentence is framed it seems that only indigenous populations in these regions (Africa and North America) are vulnerable to climate change. For a broader framework on indigenous populations' vulnerability to climate change, see Nakashima, D.J., Galloway McLean, K., Thulstrup, H.D., Ramos Castillo, A. and Rubis, J.T. (2012). 'Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation'. Paris, UNESCO, and Darwin, UNU. For other case studies of climate change and indigenous groups on other regions of the world, see Mirjam Macchi et al., 'Indigenous and Traditional Peoples and Climate Change', Issues Paper, IUCN, March (2008). Or refer the reader to Chapter 12 of this report. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	The sentence has been slightly rephrased and now starts with evidence that was provided in the AR4. Chapter 12 deals specifically with indigenous populations, so we cross-reference their findings when appropriate in our evidence section (13.2.).
149	82605	13	6	49	6	50	Presumably this statement pertains to other regions as well? For example, the chapter 25 and 27 in the current assessment may have relevant material that could be cross-referenced. (Katharine Mach, IPCC WGII TSU)	Yes, but here we cite findings from the AR4.
150	84666	13	6	49	6	50	Please consider coordinating with the regional chapters on this statement, including but not limited to Chapters 22 and 26, as other chapters such as 27 also discuss these issues. (Michael Mastrandrea, IPCC WGII TSU)	Yes, but here we cite findings from the AR4.
151	64915	13	6	49	6	51	Also indigenous peoples in Australia. Kingsley, Jonathan, et al. "Developing an Exploratory Framework Linking Australian Aboriginal Peoples' Connection to Country and Concepts of Wellbeing." International Journal of Environmental Research and Public Health 10.2 (2013): 678-698. (Ameyali Ramos Castillo, United Nations University - Institute of Advanced Studies)	Here we just acknowledge AR4 contributions to inequality. Ch 12 in AR5 deals explicitly with indigenous peoples.
152	71354	13	6	50	6	50	Suggest multidimensional poverty be explained further. (CANADA)	We have explained multidimensional poverty in the poverty section 13.1.2.1.
153	82606	13	6	51	6	51	In addition to citing the special report, it would be helpful to cross-reference the glossary for the definition of "vulnerability." (Katharine Mach, IPCC WGII TSU)	Done.
154	73564	13	6	54	7	1	The vulnerable (as described in this chapter) seems to be too wide a class as it appears to be everyone except non-indigenous able-bodied men. (UNITED STATES OF AMERICA)	Following the plenary-approved outline for this chapter, we address the intersection of poor livelihoods, inequality, gender, and marginalized groups, and highlight the role of intersecting dimensions of inequality that exacerbate structural vulnerability and impacts of climate change and climate change responses. Following the definition of key vulnerabilities in Ch 19, we adopt this increasingly broad understanding of vulnerability that includes structural and societal dimensions, independent of climate change.
155	62907	13	7	5	0	0	The word 'the' after total may be shifted to before total. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Done.
156	81113	13	7	5	7	11	A graph would be useful here. (Monalisa Chatterjee, IPCC WGII TSU)	Since we are still in the background description of the chapter, we did not include a graph here, but we have improved the text of this paragraph.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
157	73565	13	7	6	7	10	In general, this paragraph is highly misleading and does not accord with the literature. For example, the statement that inequality is increasing in most countries does not seem to be backed up by the citations. The UNRISD cite did state that inequality is increasing in most countries, but the studies it cites didn't even cover "most countries" -- the largest one they refer to had only 85, and in general the findings are ambiguous. Furthermore, the Gower citation used later on in the paragraph even points out that inequality is decreasing in many low and middle income countries. It is not clear how to interpret "economic activity and sector-specific growth constrains the productive capacity of the poor" -- how does growth constrain productive capacity anywhere? Or is it only where the poor bear the externalities disproportionately and so much so that they are not able to take part in the greater productive capacity driving the growth in the first place? The economic literature is pretty consistent in finding that growth is on average poverty reducing, so the statement needs to be very much unpacked to clarify what is meant, and under what conditions. "An inequality lens also highlights growing poverty [in HICs and MICs]" is an utterly misleading way to say that inequality has increased while not acknowledging that in most cases huge huge gains in (absolute) poverty reduction have been made. The third and fourth citations refer to China and Indonesia, which have seen massive reductions in absolute levels of poverty over the last few decades. For example: "Although China's poverty eradication efforts overshadow in their scale the progress made by other countries in the region, a number of other countries with large populations have also successfully moved millions of people out of poverty - namely, Indonesia, the Philippines, Thailand, Malaysia and Viet Nam. They have been able to capitalize effectively on the opportunities offered by strong growth to significantly reduce extreme poverty. Indeed, the big three success stories - China, Indonesia and Viet Nam - together account for an absolute drop in the numbers of the extreme poor of 718 million." <a href="http://www.un.org/esa/socdev/rwss/docs/2010/chapter2.pdf">http://www.un.org/esa/socdev/rwss/docs/2010/chapter2.pdf</a> . Even recognizing the importance of structural constraints to overcoming poverty, this paragraph seems overly critical of the progress that has been made, skeptical of the prospects for growth to raise people out of poverty, and not well cited. Consequently, it merits a serious revisit, including from an economist familiar with the growth and inequality literature. The large portfolio of Martin Ravallion and Art Kraay would be a good place to start. (UNITED STATES OF AMERICA)	We have revised this paragraph to be more nuanced in referring to what types of inequality (income), between and within country comparisons, and changes over time. We have removed the references to Gower, Gough, and Taylor & Xiaoyun, and instead Dollar et al.
158	58966	13	7	16	7	18	You mention "victims" in the conventional focus. Maybe in showing how your approach is broader, you may want to also acknowledge the agency of those affected by climate change (Lindsay Stringer, University of Leeds)	We have acknowledged agency in section 13.1.2. This sentence highlights the shift from a conventional approach (victim-focused) to a broader understanding of livelihood dynamics and inequalities (following the plenary-approved outline). The adaptation chapters (14-16) deal more explicitly with agency and adaptive capacities.
159	58967	13	7	18	7	18	"Bidirectional relationship between climate change and poverty" -- I know what you mean here but it would be stronger if you acknowledged again that the relationship is affected by other things too (i.e. it's not just a single, linear correlation, which is what might be implied by the current wording). (Lindsay Stringer, University of Leeds)	Changed to "complex".
160	81114	13	7	18	7	18	Authors may wish to add more evidence of unequal impacts of climate change. So far the focus is on building the context. (Monalisa Chatterjee, IPCC WGII TSU)	Correct, we are building context. Given that this is a new chapter in the IPCC, building this context is essential. The evidence comes in 13.2. and 13.3.
161	58270	13	7	19	7	20	The discussion no refer to "structure inequalities" in 13.1.3, but appear "Addressing structural inequalities that create and sustain poverty and vulnerability" sentence of expressing view, so I suggest that describe "structure inequalities" in detail. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	We use a term that is now recognized as a driver of vulnerability (Ch 19), structural inequalities, determined by structures in societies, development pathways, etc. Due to space limitations, we cannot go into details on these structural inequalities in the background section, but highlight compelling cases in 13.2., 13.3., and 13.4.
162	62908	13	7	21	0	0	---a pre-requisite to sustainability in the context of climate change'. Sustainability of what? Of poverty or development? (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	The word "sustainability" has been removed. It was part of a quote. We paraphrase the essence of that quote now.
163	73566	13	7	34	7	34	Suggest that the authors consider specifically highlighting gender inequalities in this sentence (e.g. ...deprivation, and persistent inequalities, including gender inequalities, create and ever-shifting...). (UNITED STATES OF AMERICA)	We mention gender inequalities in the first sentence of this paragraph now, but the evidence comes in section 13.2.1.5.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
164	73567	13	7	34	7	35	"Climate change, climate variability, and extreme events synergistically add on to and often reinforce other environmental, social, and political calamities." This statement is not adequately supported by the reference cited, particularly with regard to the phrase "often reinforce". (UNITED STATES OF AMERICA)	We cite the 2012 IPCC SREX report, the most comprehensive assessment on this issue so far.
165	81115	13	7	34	7	36	An example will be very useful here. (Monalisa Chatterjee, IPCC WGII TSU)	Still in background text. We try to keep this concise and provide examples in sections 13.2. and 13.3.
166	79574	13	7	38	7	41	Confusing and excessively long sentence. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Sentence broken into 2 parts now.
167	82607	13	7	48	0	0	Section 13.2. In the title of this subsection, the introductory paragraph, and the titles of 13.2.1 and 13.2.2, the chapter team may want to consider the best terminology given the nature of the underlying assessment. In particular, I am wondering if 13.2.1 would be best described as assessing "impacts and vulnerabilities" and 13.2.2 as assessing "future impacts and risks"? This framing, with ripples for the various subtitles and introductory paragraphs, may beneficially broaden scope in light of the plenary approved outline and framing of the summary products, while simultaneously better matching material in these sections. (Katharine Mach, IPCC WGII TSU)	We have included "risks" under 13.2.2, but not "vulnerability" under 13.2.1. Our focus was and still is on assessing impacts, not vulnerability. Ch 19 does a great job on addressing key vulnerabilities and Ch 13 has provided ample input to their tables.
168	84667	13	7	51	7	51	Importantly, section 13.2.1 discusses observed impacts of climate change and of extreme events, as well as sensitivity to climate variability. Again the relationships among different lines of evidence how it supports statements about climate change specifically need to be clear. (Michael Mastrandrea, IPCC WGII TSU)	Wherever the sources permit an explicit reference to climate change, climate variability or extreme events, we do so. Much of the literature does not distinguish between these concepts, that is why we are often using the umbrella term climate and weather events.
169	63613	13	8	3	8	4	What does that mean? Are these cases still taken into account and what has been done to deal with this lack of clarity? Please explain. If no clarification is possible (including references): delete this sentence. (GERMANY)	This sentence has been modified. Yes, we still use such cases studies.
170	63614	13	8	9	8	9	The first sentence does not provide any useful information, as it stands at the moment. Please make it more concrete or delete it. And for such a general statement you do not have to give a reference. (GERMANY)	This is an opening sentence that illustrates what has already been established in previous IPCC report. We take this as an important point of departure. Reference to the SREX is provided.
171	73568	13	8	9	8	9	Suggest that the authors revise this sentence as wWeather events and climate impact the lives of everyone, not just "poor people." (UNITED STATES OF AMERICA)	Correct, but our focus is on livelihoods and poverty and we use established evidence as our point of departure. See response above to comment #170.
172	70562	13	8	9	8	12	I would suggest adding a reference to Warner, K. & T. Afifi (2013) Where the rain falls: Evidence from 8 countries on the circumstances under which households use migration to manage the risk of rainfall variability and food insecurity, Climate and Development, Vol. x, No. x, pp. xx-xx. (Andrea Milan, United Nations University Institute for Environment and Human Security)	We could not access this most recent publication, but we have found others that are highly relevant here.
173	73569	13	8	11	8	11	Suggest that the authors provide specific examples of impacts with regard to the phrase:".. weather events can have serious impacts on livelihoods." (UNITED STATES OF AMERICA)	This is the opening paragraph to get the reader oriented. We provide examples in 13.2.1.1 to 13.2.1.5.
174	84668	13	8	12	8	15	As mentioned in the context of the executive summary, is this statement meant globally or for specific regions of the world? (Michael Mastrandrea, IPCC WGII TSU)	This is the standard procedure to report climatological data and is not specific to particular countries or regions.
175	70563	13	8	15	8	16	In steep mountain areas, climatic patterns and impacts change within short distances. See Milan, A. & S. Ruano (under review). Rainfall variability, food insecurity, migration and trapped populations in Cabricán, Guatemala, Climate and Development, Vol. x, No. x, pp. xx-xx. (Andrea Milan, United Nations University Institute for Environment and Human Security)	We do not have access to manuscripts under review. Cut-off date for accepted publications was August 31. C&D does not show this manuscript to be published in its volumes 1-3 in 2013.
176	79575	13	8	17	0	0	term 'phenomenological' could be explained for the lay person e.g. 'researching the experience of Sumbanese in Eastern Indonesia (phenomenological research)' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Sentence has been made more accessible.
177	81116	13	8	20	0	0	Authors may consider putting findings from this discussion in a table. The table could hae sectoral and multi sectoral categories of findings, types of impact, indirect impact on livelihood and citations. (Monalisa Chatterjee, IPCC WGII TSU)	We considered but there are too many different units of analysis and categories of impacts.
178	81117	13	8	20	0	0	Chapter should cross refer relevant regional chapter here. (Monalisa Chatterjee, IPCC WGII TSU)	Done!



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
179	63615	13	8	25	8	25	Please add "natural assets on which certain livelihoods depend DIRECTLY,..." - all our livelihoods depend on natural assets, but for some the link is direct, while for others it is indirect. (GERMANY)	Done!
180	61337	13	8	25	8	36	This section is all good although somewhat too brief fo such a huge issue! A key stressor of agric has been increasingly variable seasonal weather change, less predictable rains etc. (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	Chapters 7 and 9 cover impacts on agriculture. We can only focus on provide a condensed assessment of impacts on natural assets.
181	63616	13	8	29	8	31	"studies since the late 1970s have observed", but at the end of the sentence there is only one reference. Please provide all references. (GERMANY)	Sentence has been modified.
182	73570	13	8	29	8	46	Suggest that the authors consider including an island nation in the paragraph beginning on line 46. (UNITED STATES OF AMERICA)	We refer to Chapter 29 (small islands).
183	73571	13	8	30	8	31	The effects of overfishing would be included in the % drop that is cited. The wording should be revised to reflect the intended point, that the climate change impacts may contribute more to the decline compared to other stresses like overfishing. (UNITED STATES OF AMERICA)	Sentence has been modified.
184	73572	13	8	38	8	42	"Weather events and climate also erode farming livelihoods" All weather events and aspects of climate? Weather and climate as discussed in this section seems to imply inherently negative impacts on farming, which is not always the case. (UNITED STATES OF AMERICA)	We have introduced "weather events and climate" as an umbrella term at the beginning of 13.2. We discuss positive impacts under 13.2.1.4, and indeed there are some, although few.
185	58968	13	8	43	8	43	Semi-colon is incorrectly located (delete the unnecessary space) (Lindsay Stringer, University of Leeds)	Done.
186	58969	13	9	1	9	1	Change flooding water into flood water (Lindsay Stringer, University of Leeds)	Done.
187	81118	13	9	1	9	4	Chapter 22 has a case study on floodings in Lagos. Perhaps it could be refered here. (Monalisa Chatterjee, IPCC WGII TSU)	We have cross-referenced Chapters 22-29 at the beginning of the section. This saves precious space to cross-reference every possible case study between our chapter and all regional chapters.
188	62909	13	9	4	0	0	The following point may be considered for adding to 'physical assets': Physical infrastructure of health (hospitals, health units), sanitation and water is damaged due to floods. In 2010-floods in Pakistan, 515 health units (representing 5% of total available facilities) were partially or totally destroyed and around 10,600 lady health workers (representing one-third of the total) were unable to function leading to severe shortage of human resources. The accessto safe water in the flooded areas was curtailed by 20%. In many cases, pipes were contaminated with sewerage water (UNDP. 2010. The human cost of floods in Pakistan, Islamabad). (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Thanks, we included your reference
189	58970	13	9	4	9	4	Looting in poor areas may require further explanation. If the area is poor what is there in the way of assets to be looted? An example would help to crystallise this. (Lindsay Stringer, University of Leeds)	The part of looting was removed.
190	63617	13	9	4	9	4	It is quite difficult to draw the connection between climate change and looting after a disaster - you cannot relate everything to climate change, this threatens the credibility of the report. Please change "often" in "sometimes". (GERMANY)	The part of looting was removed.
191	73573	13	9	9	9	11	The authors should include some examples of what is meant by climate stress. (UNITED STATES OF AMERICA)	Changed to climatic stressors.
192	73574	13	9	12	9	13	The argument that income losses are compounded by expenses does not make sense. The expenses listed are regular expenses that would be incurred with or without climate change. Perhaps this intends to say that climate-induced losses will mean that the poor will no longer be able to afford these items? (UNITED STATES OF AMERICA)	Corrected to "mean less money for".
193	61338	13	9	15	9	15	Could add here a line on the close link between disease events and deepening debt & poverty (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We refer to Chapter 11 on disease events and poverty.
194	60676	13	9	15	9	26	This is also verified amongst the affected poor in Zambia - coping strategies include reducing meal quantities, numbers and composition (e.g. shifting to a vegetable-only diet) or reliance on less preferred or wild foods. See Government of Zambia (2011). Strategic Programme for Climate Resilience. Ministry of Finance. June 2011. Report sent as a Supporting Material. [SPCR Zambia Submission Final.pdf] Note also that in Southern Madagascar, where drought is prevalent, the poor resort to eating cactii as a famine food. Sales of livestock are also a common coping strategy in Eastern and Southern Africa. (Sofia Bettencourt, World Bank)	We have included the reference.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
195	58971	13	9	16	9	16	Food production may be more appropriate terminology than food security. Food security is a much broader concept linked to accessibility of food as well as availability. At the moment you discuss this in relation to failed crops, making it a food production issue. (Lindsay Stringer, University of Leeds)	We say that increased food insecurity emerges as a result of failed crops. This paragraph deals with human assets so we feel that food insecurity is the more appropriate term, and not food production (which is not an example of impacts on human assets).
196	62910	13	9	22	0	0	The following point may be considered for adding to 'human assets': Rising temperatures and increased frequency of heat waves are likely to augment the risk of heat related mortality and morbidity in urban poor and older population groups (WHO. 2008. Climate change and health. World Health Organization) (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Due to space constraints, we cross-reference the health chapter (11).
197	62911	13	9	24	0	0	The following point is suggested to be added: Rising humidity and temperature levels stimulate the spread of vector-borne diseases such as Dengue fever, malaria, encephalitis and yellow fever. It has been predicted that a 3-4degree C rise in average temperature would result in 100% increase in the reproduction rate of Dengue virus. (World Bank. 2010. World Development Report, World Bank, Washington DC). Similarly, many other vector-borne diseases including Chagas disease, Schistosomiasis, River Blindness and Sleeping Sickness are projected to increase with increasing temperature. (Muhammad Mohsin Iqbal, Global Change Impact Studies Centre)	Due to space constraints, we cross-reference the health chapter (11).
198	70713	13	9	28	9	31	We think that the sentence could be clarified and written in a more precise manner. Do women in general constitute a specific group here? (BELGIUM)	Yes, women do constitute a specific group here in the context of informal social networks.
199	64824	13	9	28	9	32	This section on the erosion of social and cultural resources needs expansion as this is a very important issue. Overall this chapter does not sufficiently address the role of culture. (JC Gaillard, The University of Auckland)	Culture is addressed in more depth in Chapter 12 (human security) which we cross-reference here.
200	73575	13	9	28	9	32	Weather and climate as presented here as inherently negative in impacts on social and cultural assets, which is not always the case (UNITED STATES OF AMERICA)	We list positive impacts under 13.2.1.4., what we were able to identify.
201	77121	13	9	28	9	32	In which contexts? Use some hedges, "in some contexts, stressors and changing trends disrupt informal social networks... and formal social networks, such as social assistance programs". There is evidence that social protection programmes have been strengthened after certain stressors, such as the economic crisis in 2008. See Barrientos, A. (2010): 'Social protection and poverty', Social Policy and Development Programme 42, January. United Nations Research Institute for Social Development. In: Kevin Farnsworth Zoe Irving, editor(s). Social Policy in Challenging Times: Economic crisis and welfare systems. Bristol: Policy Press; 2011. pp. 101-118. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We included a hedge here. We deal with social protection programs under 13.4.1.
202	73576	13	9	39	9	41	The connection of the "wheel of hardship" to climate change is less than transparent since it is presented in the context of "annual and inter-annual climate variability" and that "wheel of hardship" is endured independent of a changing climate, at least from the presented context. It is presumably exacerbated, but that isn't really discussed. The authors should make the connection to climate change more explicitly. (UNITED STATES OF AMERICA)	We no longer call it "wheel of hardship" and we refer to seasonal livelihood sensitivity to climatic and non-climatic stressors. We now make the link to climate change.
203	73577	13	10	6	10	7	"In West Africa, shifting seasonality of rains hamper crop and water management of small-scale farmers." Farmers farm according to seasonality - "how does that "hamper" crop and water management? This statement needs expansion or clarification (e.g., is it greater uncertainty of when rains will come, or rains coming later in relation to traditional planting seasons?) (UNITED STATES OF AMERICA)	The sentence has been rephrased.
204	73578	13	10	10	0	0	Section 13.2.1.3: It is not clear that urban poor are more affected by climate change than rural poor just because the urban poor are net buyers of food. Urban poor have diversified income sources to purchase food while rural poor farmers incomes are more weather vulnerable. Also, rural poor in many countries may also be net buyers of food and some are landless. (UNITED STATES OF AMERICA)	Both rural and urban poor are now discussed, when they are net buyers of food.
205	73579	13	10	12	10	20	Some of what is included in this paragraph seems to be not related to climate change. Authors should be more explicit as to what aspects are impacted by climate change, which are not and how climate change might be expected to interact with these other factors. Particularly as this section is characterized as having "limited evidence." (UNITED STATES OF AMERICA)	The sentence on children and maladaptive responses has been removed. We feel strongly to report on dynamics for which there is high agreement re their importance but still limited evidence in the literature (hence a research gap).
206	73580	13	10	20	10	20	Suggest that the authors refer to "secure" land tenure rather than just "formal" land tenure, as the latter is not always secure. (UNITED STATES OF AMERICA)	Done.
207	81119	13	10	22	10	36	Authors may wish to use LIC, MIC and HIC categories here, if possible. (Monalisa Chatterjee, IPCC WGII TSU)	Done.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
208	73581	13	10	27	10	30	It is not clear why climate change would restrict access to forests. (UNITED STATES OF AMERICA)	The sentence has been rephrased and now shows the link between poor people, climate shocks, and restriction to forests.
209	84669	13	10	34	10	36	Are there citations to support these last statements of the paragraph? (Michael Mastrandrea, IPCC WGII TSU)	No, but that's the chapter's team assessment of the literature. Some clarification in the text made.
210	58972	13	10	42	10	42	Poverty traps aren't just about the poor getting poorer but also can include the poor remaining poor and unable to escape their poverty. This would benefit from inclusion/clarification. (Lindsay Stringer, University of Leeds)	Corrected.
211	73582	13	10	45	10	46	This sentence seems to go beyond what can strictly be considered as a climate change effect. For example, environmental degradation is often the result of human behavior and poor land management decisions. Suggest that authors more explicitly clarify the climate change related aspects. (UNITED STATES OF AMERICA)	The climate change impacts have been clarified.
212	73583	13	11	1	11	2	It is not at all clear from the context or the abstract of the Di Falco and Bulte paper a) how there is a poverty trap, b) what the dynamics are by which the kinship risk sharing leads affluent farmers to avoid investing in soil fertility. Suggest removal or elaboration -- but "as is" the text just raises questions. (UNITED STATES OF AMERICA)	This sentence has been removed.
213	73584	13	11	6	11	9	Reciprocal gifts and exchanges are more often and more effectively used to protect against idiosyncratic shocks, so illness may be a better example than drought. Covariant shocks like drought, that affect entire families, communities, and regions, are very hard to address through inter-personal transfers. (UNITED STATES OF AMERICA)	We have included illness, although it is often not a climate-related stressor.
214	73585	13	11	14	11	19	The relative size of these improvements from reforms is small compared to the magnitude of the losses from disasters and pandemics. (UNITED STATES OF AMERICA)	Yes, but we were asked to provide positive impacts, and there aren't too many.
215	84670	13	11	14	11	19	As mentioned in the context of the executive summary, it is not clear how the statements about responses to Hurricane Mitch directly support statements about climate change--implicit is the assumption that responses to extreme events provide evidence relevant to evaluating potential responses to climate change, and it would be useful to explain the assumed linkage more clearly. (Michael Mastrandrea, IPCC WGII TSU)	We have rephrased this sentence and point toward lessons from Hurricane Mitch.
216	81120	13	11	16	11	19	It may be useful to mention the positive socio economic conditions that facilitated these positive changes. (Monalisa Chatterjee, IPCC WGII TSU)	We are limited by what we can extract from the articles.
217	64826	13	11	22	13	21	This section needs to ask why we are facing such inequalities. (JC Gaillard, The University of Auckland)	Sadly, this is beyond the scope of this chapter. Nonetheless, we refer to Ch 19 that provides a mature discussion on inequalities contributing to structural key vulnerabilities.
218	77122	13	11	22	13	22	Section "13.2.1.5. Implications for Inequality". This section verily addresses inequality issues and instead it develops the gendered aspect of climate change vulnerability. See my comment page 6, line 44, about consider merging this section with section 13.1.3 Inequality and Marginalization, and balance the section on indigenous and gender issues. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	Title of sub-section changed to "Multidimensional Inequality and Vulnerability", to also better match the figure and the sections in the SPM and TS. We do not want to merge the 2 sections as the former provides background info on conceptual linkages and the latter concrete evidence from the literature
219	64825	13	11	24	11	33	Excellent point which deserves more attention throughout the AR5! (JC Gaillard, The University of Auckland)	Thanks! We are trying hard to get these points into the Summary for Policy makers and the technical Summary.
220	63618	13	11	27	11	32	The term "gender" should be replaced by the term "sex". Hence "... intersections of sex, race, class..." and "...along the line of sex, age, ..." (see also comment on TS p. 5 line 47 and SPM p. 3 line 51). (GERMANY)	No, we do mean gender and not sex here. Moreover, we have an explicit mandate from the plenary-approved outline to assess impacts on gender (and so do Chapters 11 and 12).
221	73586	13	11	30	11	30	Which countries do the authors consider to be " northern welfare states" ? (UNITED STATES OF AMERICA)	This sentence has been modified. Reference now to HICs and welfare systems.
222	73587	13	11	31	11	31	Please define what is meant by (or give examples of) "amplify unevenly distributed climate impacts." (UNITED STATES OF AMERICA)	This sentence has been modified, stressing impacts of climate change.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
223	73588	13	11	35	0	0	<p>Box 13-1: The authors should consider supplementing the text in Box 13-1 with additional material from the references given below. Some example material is included: Differences in the Effects of Climate Change on Women and Men Climate change is expected to increase current gender inequalities because women are more dependent on the natural environment for their livelihoods than men (agriculture, non-wood forest products, and food processing), making them more vulnerable to climate variability and extreme weather events. Women and girls are usually responsible for water, fodder, and fuelwood collection. Women have fewer resources to cope with climate change and often have a greater workload. Female-headed households are disproportionately located in remote or rural areas that are more susceptible to weather-related disasters.(1) Since women are the primary caregivers, adverse health effects on any family members will increase the burden on women. Climate Change Mitigation Some important gender issues for clean energy: -Women comprise only one-fifth of energy professionals globally so women's views may be under-represented in various professional fora. This may be due to lower prevalence of science and engineering degrees among women and may contribute to institutionalizing male control of decision making by government agencies and corporations. -Men are more likely to be laborers in energy industries and may experience greater unemployment following efficiencies in energy production or fuel substitution. Women may not have equal access cleaner energy technologies. For example, the International Finance Corporation (IFC) found that women-owned businesses in five African countries had greater difficulty obtaining connections to the electric grid to replace traditional fuels than businesses owned by men. Electrification may also affect the allocation of labor tasks by gender so that men benefit disproportionately, as was found in a study in China reported by ETC. -Women and children have greater exposure to indoor air pollutants from fuelwood and charcoal use. The United Nations Development Program (UNDP) estimated that there are 3 million premature deaths from indoor air pollution and 80% are women and children. Climate change mitigation efforts that involve substitution of cleaner fuels will have positive benefits for women and children. Climate Change Adaptation Women comprise the majority of the 1.3 billion people in deepest poverty worldwide. Furthermore, in many countries, women's views are under-represented in national negotiations and policy frameworks relating to climate change. Women have fewer options for coping with financial strains from climate change through access to loans for consumption purposes, employment opportunities off farm or outside the household, or government assistance.(2) In much of the developing world, women play the major role in production of basic food crops and have fewer resources and less ability to cope with reductions in agricultural harvests. Few farmers in developing countries outside of a few small pilot projects have access to crop insurance. Agriculture and forestry adaptation methods may include soil and forest rehabilitation, expansion of irrigation or increased efficiency of irrigation, no-till and other conservation agriculture techniques. Women may have less access to good arable land or may be more likely to be farming on vulnerable or marginal sites. Women often have lower levels of literacy and numeracy due to less</p>	<p>Each component of this comment and the six suggested sources was reviewed. Added to Box 13-1 was information about disaster relief structures (WB 2010 and also about women in the Philippines from Peralta 2008. The remainder of this response first addresses the sources. Based on the source material, few of the suggestions could be incorporated into the chapter text. The large majority of the suggested sources are gray-literature sources. The author team prioritized peer-reviewed sources whenever possible and in the context of space constraints elected to use peer-reviewed papers instead of gray literature (in the first review, Oxfam papers were removed based on critique). 1. Oxfam paper from 2007. The relevant peer-reviewed sources in this paper were Denton (already cited in Box 13-1), Dankelman (updated papers used), Nelson (updated paper used), and IPCC (2007). 2. WEDO paper from 2008. Thank you for this interesting report. The information presented relies on interviews with an NGO but could not be included due to space constraints. 3. World Bank report from 2010. See above. The point about cell phone and media access was interesting but could not be identified in report. Much of the report treats future adaptation. It is not clear what the connection is between extreme weather events and girls' education. 4. Van Staveren 2002. This book chapter from 2002 does not address climate or climate change and given the space constraints does not meet our criteria for inclusion, and it is not new evidence after AR4. 5. ETC Foundation handbook from 2011. This handbook recommends processes for incorporating gender analysis into energy projects. It is prescriptive and does not cite peer-reviewed references. 6. USAID handbook from 2009. This is about</p>

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
223.2	73588	13	11	35	0	0	<p>access to education services. Women may have less access to agricultural extension services that can help them change cropping patterns and varieties and lower educational backgrounds may impede the effectiveness of extension services and materials. Women have less capital and access to financing to purchase adaptive technologies and inputs to respond to climate change or relocate. Gender sensitivity in disaster relief may require separate rooms for women in shelters and location of more shelters in rural areas. The World Bank estimated that coping with extreme weather events may require educating an additional 18-23 million girls per year at an annual cost of \$12-15 billion.(3) At the national level, early warning systems, flood control measures and better control and planning of human settlements may reduce disaster risks. Women may have less access to information from early warning systems because of lower cell phone ownership and less exposure to the media. They are less likely to have effective means of transport for evacuations. Women may also have less access to health services. Gender Issues in Financing Investments Small- and micro-enterprises in the informal sector that are owned by women typically face a gender gap in access to financing. This may even extend to formal sector companies. Also, public or private sector investments may have implications for small- and micro-scale entrepreneurs, farmers, natural resource users, or households that will require gender analysis. Efforts to increase women's access to financing for small- and micro-enterprises may increase their incomes and empowerment, but could disrupt traditional gender roles within households. There are four general sources of gender bias in global finance: 1) under-representation of women in decision making by multilateral development banks and financial institutions, 2) gender gaps in the economic positions of women and men, 3) gender-based instability of financial markets, and 4) inefficient resource allocation in financial markets due to gender discrimination. Financial institutions face higher transaction costs in getting information on the risks of new women borrowers (and may have inaccurate perceptions), longer negotiation time because women have less experience with formal credit, and greater difficulty monitoring informal sector or small-scale enterprises and obtaining collateral or enforcing property rights. Women borrowers also have higher transaction costs in obtaining credit because of lower education levels and access to information, reduced mobility, inability to keep loan proceeds out of the hands of other household members, and greater susceptibility to pressure from creditors.(4) Mainstreaming Gender Gender mainstreaming refers to the integration of the issues, opportunities, and challenges facing women and men in all legislation, policy, programs, projects, and activities, rather than creating separate standalone projects for women and men. Gender mainstreaming has been shown to increase the effectiveness of development interventions in agriculture, infrastructure, extractive industries, and energy. Examples of tools that can be useful in gender analysis include the sexual division of labor matrix; access and control of resources table; mapping and other participatory rapid appraisal techniques; value chain analysis; assessment of needs, priorities, challenges, and perspectives. This resource also contains resources for a gender mainstreaming workshop and examples of project activities for a Gender Action Plan in the energy sector. (5)</p>	<p>agricultural value chains, not about climate change, and will not be included.</p>



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
223.3	73588	13	11	35	0	0	Peralta (2008) made the following recommendations for adequate consideration of women in climate-related financing, mitigation, and adaptation policies and programs: 1.Create mechanisms that guarantee women%'s equal access to negotiating, developing, managing, and implementing adaptation and mitigation financing 2.Include disaggregated indicators on mitigation and adaptation funds for targeting and monitoring benefits to women 3.Develop principles and procedures to protect and encourage women's access to national adaptation programs and projects 4.Conduct gender impact assessments of adaptation and mitigation strategies 5.Implement "the polluter pays" and "shared but differentiated" principles 6.Ensure mitigation strategies include both financing new, green technologies and development and enforcement of necessary regulations of greenhouse gas emissions Recommendations for Incorporation of Gender Analysis in Project Activities The same principles and procedures apply for gender analysis for climate change as with agricultural value chains: 1.Mapping gender roles and relations 2.Identifying gender inequalities and constraints 3.Assessing the consequences of gender-based constraints 4.Taking actions to remove gender-based constraints 5.Measuring the success of actions Examples of data collection and analysis tasks that are likely to involve gender considerations include 1.Development of baseline information and projections of changes in gender roles and relations with and without additional interventions a.Baseline surveys b.Review of existing documentation from primary and secondary sources, including the experience with similar activities elsewhere or other activities in the same geographic area c.Stakeholder analyses d.Sector and sub-sector studies 2.Estimation of differences in benefits, costs, and non-monetary impacts for women and men, including implications for use of time 3.Consideration of legal, institutional, economic, and socio-cultural constraints to participation by women and men and ways of overcoming these constraints 4.Use of gender-disaggregated indicators in monitoring and evaluation. References 1.Oxfam International. 2007. "Adapting to Climate Change: What's Needed in Poor Countries, and Who Should Pay." Oxfam Briefing Paper 104, Oxford. 2.Peralta, Athena. 2008. Gender and Climate Change Finance: A Case Study from the Philippines. New York: Women's Environment and Development Organization (WEDO). 3.World Bank. 2010. Economics of Adaptation to Climate Change: Synthesis Report. Washington, DC: World Bank. 4.Van Staveren, Irene. "Global Finance and Gender," in Scholte, Jan-Aart and Albrecht Schnabel (eds.). 2002. Civil Society and Global Finance. London: Routledge. 5.Cecelski, Elizabeth and Soma Dutta. 2011. Mainstreaming Gender in Energy Projects: A Practical Handbook. Rugby, UK: Practical Action, Published for ENERGIA International Network on Gender and Sustainable Energy (ETC Foundation, Leusden, Netherlands). 6.Rubin, Deborah, Cristina Manfre, and Kara Barrett. 2009. Promoting Gender Equitable Opportunities in Agricultural Value Chains. Arlington, VA: Development and Training Service (dTS), Prepared for the USAID Greater Access to Trade Expansion (GATE) Project. (UNITED STATES OF AMERICA)	
224	73589	13	11	39	11	39	"Preexisting gender inequality is increased or highlighted as a result of weather events and climate-related disasters" - please include some examples of this. (UNITED STATES OF AMERICA)	This is our introductory sentence, with abundant references. Detailed examples that support evidence along several important dimensions are provided below.
225	73590	13	11	46	11	49	If we are not to deny agency and only cast women as victims, the chapter should acknowledge that gender roles are not static and may indeed shift as a response to climate change challenges. For a fuller snapshot of the State of Food and Agriculture and women's role, See "Closing the gender gap for development" <a href="http://www.fao.org/docrep/013/i2050e/i2050e01.pdf">http://www.fao.org/docrep/013/i2050e/i2050e01.pdf</a> (UNITED STATES OF AMERICA)	We include the word dynamic now. The provided reference, while very good, does not directly refer to climate change, hence we decided to leave it out.
226	73591	13	11	51	11	53	In addition to intra-household gender concerns, one must account for male vs female headed household differences. Divergence between MHH and FHH, especially in terms of land holding size, age of head of household, access to credit sources, dependency, etc., need to be understood in order to derive appropriate policy responses. See for example in Ghana <a href="http://www.fao.org/docrep/016/ap090e/ap090e00.pdf">http://www.fao.org/docrep/016/ap090e/ap090e00.pdf</a> (UNITED STATES OF AMERICA)	Correct. However, we did not find compelling evidence on differential impacts on FHHs and MHHs that also are explicit about the type of climatic changes encountered. The provided pdf link is good but includes no reference to climate change.
227	73597	13	12	0	0	0	It is not clear what data are supporting the table contents. (UNITED STATES OF AMERICA)	The table has been updated, with examples from Australia and India, and references are provided.
228	81121	13	12	4	12	4	It may be useful to mention the differential impacts. (Monalisa Chatterjee, IPCC WGII TSU)	We feel that "differentially affected" and "differential impacts" is the same.
229	58973	13	12	9	12	9	As per my earlier comment, force is a strong term. Replace with "push" (Lindsay Stringer, University of Leeds)	Done.
230	63619	13	12	13	12	14	A few lines above you cited another study that found equal workload for both males and females. Maybe you should discuss them together. (GERMANY)	Inconsistency is now corrected.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
231	59072	13	12	13	12	18	The text could also add that the coping or adapting strategies of one gender group affect the vulnerability and opportunities of other groups. For example, in Northern Mali, women produce charcoal as a coping strategy and invest this income in long-term strategies such as children education. But men's strategies such as migration increase the workload of the rest of the family, reducing school attendance (Brockhaus et al., 2013). [Brockhaus M., Djoudi H., Locatelli B., 2013. Envisioning the future and learning from the past: Adapting to a changing environment in northern Mali. Environmental Science & Policy 25: 95-106. doi:10.1016/j.envsci.2012.08.008] (Bruno Locatelli, CIRAD-CIFOR)	Thanks for the reference. We have included it in our section on adaptation responses.
232	81122	13	12	13	12	18	Some example of physical toll should also be provided. (Monalisa Chatterjee, IPCC WGII TSU)	The wording has been changed to "exhaust" - that's the level of detail described in the original reference (drained, worn out). It's tiring.
233	63620	13	12	16	12	18	Example on Ghana: This example is not easily comprehensible. Add brief explanation of the reasons that lie behind the husbands' prevention. (GERMANY)	The sentence has been modified to make it more comprehensible.
234	63621	13	12	22	12	22	You should not report "anecdotal evidence" here. Again, this threatens the credibility of the report. Oxfam, which is cited here, is by no means a scientific organization. Therefore delete L 20-24. (GERMANY)	We are encouraged by the IPCC to include gray literature when no comparable evidence exists in the peer-reviewed literature. Oxfam reports fall under this category. Yet, we stress that the evidence is anecdotal to not conflate.
235	73592	13	12	29	12	31	Do these references actually ascribe increased gender-based violence to incremental change or just disasters? (UNITED STATES OF AMERICA)	Both. The Australian cases are largely about the slow-onset 10-year drought, and the example from Bangladesh on sea level rise.
236	73593	13	12	34	12	34	The increase in trafficking/sexual exploitation also has important implications for HIV/AIDS and other diseases, which poses an additional challenge for those in or near the poverty line (UNITED STATES OF AMERICA)	Correct, but beyond the scope of this chapter.
237	73594	13	12	36	12	37	This seems too generalized a statement - how widespread is it that poor women are prohibited from knowing how to swim? (UNITED STATES OF AMERICA)	The sentence has been rephrased and supported by a better reference.
238	73595	13	12	36	12	41	Communications also play a role in mortality rate (e.g. information has been shown to pass to men in markets but not make it to the women at home) (UNITED STATES OF AMERICA)	Correct, but due to space constraints, we could not include it.
239	82608	13	12	43	12	44	Is this box, with its focus on gender, the most appropriate location within the chapter to introduce figure 13-4? (Katharine Mach, IPCC WGII TSU)	Figure 13-4 has been moved outside the gender box and is now part of the intro paragraph of 13.2.1.5.
240	84671	13	12	43	12	44	This figure is about more than just gender, so its placement in a box on gender inequality is somewhat strange. It would be useful to consider presenting it in the main text of section 13.2.1.5 instead. (Michael Mastrandrea, IPCC WGII TSU)	See response above.
241	73596	13	12	51	13	4	This section should cross-reference the relevant discussion on relationship between climate and chronic child malnutrition in chapter 11 (11.6.1.2) It is also missing a key reference that discusses the relationship of climate variables on child stunting in Mali and includes projections on the potential exposure of of an additional number of children in Mali to the heightened risk of malnutrition from climate and livelihood changes (See Jankowska et al, "Climate change and human health: Spatial modeling of water availability, malnutrition, and livelihoods in Mali, Africa", Applied Geography, Volume 33, April 2012, Pages 4-15). (UNITED STATES OF AMERICA)	We cross-reference Chapter 11. We use the recommended reference for our section on future impacts. Thanks!
242	79576	13	12	51	13	4	Is it worth mentioning the 1st 1000 days and that malnutrition during this period has irreversible impacts on lifetime earnings etc. Is there no evidence (other than the stunting reference used from Alderman) that children below the age of 2 are particularly vulnerable during periods with low food availability e.g. droughts, floods etc? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	We refer to Chapter 11 for more in-depth health effects.
243	73598	13	13	6	13	15	This paragraph should cross-reference chapter 11. (UNITED STATES OF AMERICA)	Done.
244	79577	13	13	12	13	12	What is meant by 'misinformation propagated through bonding networks' - really not clear what this means in relation to elderly citizens in the UK not coping with heat waves. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence has been revised for clarity.
245	65362	13	13	13	13	13	The word 'Korea' need to check up whether it is only South Korea or the Republic of Korea. (REPUBLIC OF KOREA)	Changed to South Korea.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
246	63622	13	13	14	13	15	See our comment above. Here, the anecdotal evidence even comes without any reference. (GERMANY)	There were no peer-reviewed references available on Sandy at the time of the SOD. We now provide 2 references. We do want to stress that all chapter authors of WGII are encouraged to use gray literature when no peer-reviewed references are available.
247	77336	13	13	20	13	21	Emphasising disproportionate climate impacts, a typology of climate vulnerability of Quechua smallholders in southern Peruvian highlands reveals that this indigenous group was significantly impacted by moderate drought and frosts events (Sietz et al. 2012). In particular, households with limited access to cropping area, livestock and income faced significant difficulties to deal with climate variability. The study presents an elaborate validation of results based on the correlation of the typology and independently reported damage as a result of climate variability. 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)	We have included the provided Sietz et al. 2012 reference. Thanks.
248	73599	13	13	26	13	30	This paragraph should include references to support the statements. (UNITED STATES OF AMERICA)	This is the opening paragraph to the section on future impacts. The examples and references come in the sub-sections below.
249	81124	13	13	28	13	28	It may be useful if there is some mention of how these future impacts are also dependent on present policy actions. Perhaps the discussion on eras of responsibility and options (mid term/log term future) could also be integrated here. (Monalisa Chatterjee, IPCC WGII TSU)	Policy options are now mentioned, as well as near- and distant future.
250	73600	13	13	30	13	30	After reviewing a bunch of projections, the paragraph ends with an opaque caveat "Only some projections include adaptation." What should the reader take away from this? One might guess, drawing on external knowledge, that the cases which do allow adaptation show less severe impacts. But maybe it is the opposite - accounting for adaptation shows greater transformations, which are in themselves an impact. This sentence needs to be elaborated on to be of use to the reader -- otherwise it simply has the effect of saying "but some studies are more valid than others, and that the studies aren't directly comparable." (UNITED STATES OF AMERICA)	This sentence was added upon request by Kris Ebi during the FOD review process. The sentence has been slightly rephrased and now also includes policy options.
251	73601	13	13	32	13	33	Do "future climate impacts" (line 32) and "anticipated impacts" (line 33) refer to ecological/climatic impacts specifically? It may be helpful to clarify this, as it is otherwise confusing. (UNITED STATES OF AMERICA)	Yes, future climate impacts refers specifically to climatic impacts. We clarify that we mean impacts on the poor.
252	60560	13	13	40	0	0	It is not true that the evidence in this area is mixed. Due to data limitations and lack of conceptual clarity, with the exception of Reuveny (2007), no empirical study has been able explore the general consequences of environmental migration across cases. While there exist some evidence for a link between transnational refugee flows and outbreak of armed conflict (see for example Buhaug and Gleditsch (2008), and Salehyan (2007)), it is not obvious that environment-induced population flows will have the same security implications for the host population as migrants escaping armed conflict. Buhaug, Halvard and Kristian S. Gleditsch, 2008: Contagion or Confusion? Why Conflicts Cluster in Space. International Studies Quarterly 52(2): 215–33. Salehyan, Idean, 2007: Transnational Rebels: Neighboring States and Sanctuaries for Rebel Groups. World Politics 59(2): 217–242. (Vally Koubi, University of Bern)	This comment seems to be for Chapter 12. We had no SOD text in Line 40 and do not talk about environmental migration in this section.
253	60677	13	13	41	0	0	It seems strange not to mention Small Island Developing States in this section, as they generally show the highest proportion of vulnerable population to sea level rise (particularly atoll countries such as Kiribati, Marshall Islands and Maldives). (Sofia Bettencourt, World Bank)	See above. This comment must have been meant for Ch 12. Our line 41 in the SOD was a section heading.
254	64828	13	13	41	14	11	This section lacks evidence. The ranking of countries is challengeable. The argument also overemphasises the importance of sea-level rise in coparison to anthropogenic land subsidence (in deltaic plains for example) which has nothing to do with climate change. (JC Gaillard, The University of Auckland)	This entire paragraph has been improved. Some of the ranking has been removed.
255	77123	13	13	41	14	12	Section "13.2.2.1. Projected Impacts by Geographic Region". Given that this chapter is "Livelihoods and Poverty" consider moving this section to another chapter. This analysis is based on an approach based on impact vulnerability rather than contextual vulnerability, living aside livelihoods analysis and runs the risk of excluding other vulnerable localities. Moreover, the regional chapters of the report already mention several regional examples. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have corrected this mistake. This section is about future risks, not vulnerability.
256	73602	13	13	43	13	43	"Climate change will exacerbate vulnerability and in turn further entrench poverty (very high confidence)." Do we really have very high confidence of that poverty will be further entrenched? (UNITED STATES OF AMERICA)	We have replaced vulnerability with risk, and for that, yes, we have very high confidence.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
257	68100	13	13	44	13	48	"Hong Kong" is a special administrative region of China instead of a country. It is suggested to change "The 20 countries" in Line 44 to "The 20 countries and regions"; and change "Hong Kong" in Line 48 to "Hong Kong SAR". (CHINA)	Done.
258	73603	13	13	48	13	49	Please clarify how the authors identified the top five countries in this sentence. (UNITED STATES OF AMERICA)	This sentence has been rephrased. We no longer talk about the top 5.
259	85124	13	13	48	13	53	In the AR5 context, exposure and vulnerability are considered separate (see AR5 WGII Glossary). Both interact with physical climate changes to determine risks. Please consider the terminology here and its consistency with the glossary, as risk may be more appropriate than vulnerability in this context. (Michael Mastrandrea, IPCC WGII TSU)	We have replaced vulnerability with risk. Indeed, our oversight in the SOD.
260	63623	13	13	52	13	53	I was quite surprised to read that Qatar, Bahamas and Bahrain have the highest share of vulnerable population. It would be good to know how vulnerability is defined in these projections. Please add a reference and a definition of vulnerability. (GERMANY)	This part of the sentence has been removed.
261	63625	13	14	0	15	0	A mentioning for the impact of additional risks and uncertainties might be appropriate in this chapter. (GERMANY)	We attempt to estimate the additional risk in our risk table, but not for geographic regions. See Table 13-2.
262	77338	13	14	8	14	8	A typology of drylands shows that poverty and the degradation of natural resources are major factors that result in high levels of vulnerability above all in the drylands of the Middle East as well as major parts of Africa (Sietz et al. 2011). REFERENCE: Sietz, D., Lüdeke, MKB. and Walther, C. (2011) Categorisation of typical vulnerability patterns in global drylands. Global Environmental Change 21(2): 431-440. (diana sietz, Wageningen University)	We have included this reference.
263	77337	13	14	9	14	9	An important highly vulnerable region are the high mountains of southern Peru (Altiplano) where extreme weather events and multidimensional poverty shape the vulnerability of smallholders, for example (Sietz et al. 2012). 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)	We have included this reference in the section on indigenous people in the Andes.
264	81125	13	14	16	14	18	It will be useful if the summary sentence here also summarizes the key synthesized findings from these studies. (Monalisa Chatterjee, IPCC WGII TSU)	We provide a summary of the literature findings in the 3 paragraphs below the introductory paragraph.
265	63624	13	14	18	0	0	Additional sentence: Further negative impacts on livelihoods, due to a loss of biodiversity and ecosystem services can be expected (TEBB, 2010). This has implications on national growth rates as well as living standards. (GERMANY)	We could not locate this reference.
266	57676	13	14	31	14	38	This discussion is misleading. A 25% drop in income should be compared to the growth rate over the same period. Income easily grows by 25% per decade, so 25% drop due to climate change means that people will be 225% rather than 250% richer. (Richard S.J. Tol, Vrije Universiteit Amsterdam)	That is not how we interpret the Mendelsohn paper.
267	65501	13	14	42	14	47	South Asia is a major contributor to agriculture and specially to cereals and is also among those regions in the world where the world's largest number of hungry/ food insecure people are projected under the changing climate scenarios, the studies pertaining to this situation in South Asia needs to be incorporated in the draft. e.g; Iqbal, M M. , M. A. Goheer and A. M. Khan. 2009. Climate change aspersions on food security of Pakistan. Science Vision, 15, 15-23. (Arif Goheer, Global Change Impact Studies Centre (GCISC))	Due to space constraints, we cannot include this reference, but we cross-reference the food chapter here (Chapter 7) for more details.
268	58974	13	14	43	14	43	Mid of the - should be middle of the 21st century or mid-21st century. Current expression is strange. (Lindsay Stringer, University of Leeds)	Done.
269	81126	13	14	50	0	0	The section may benefit from some sort of mid term/long term future framing. (Monalisa Chatterjee, IPCC WGII TSU)	We have included near- and long-term wherever possible.
270	73604	13	15	27	15	28	As worded, this sentence implies that "welfare" is altered by up to 55%, rather than food prices. (UNITED STATES OF AMERICA)	This is correct.
271	81127	13	15	33	0	0	Authors may wish to consider adding a table classifying all parameters by LIC, MIC and HIC. (Monalisa Chatterjee, IPCC WGII TSU)	This will be defined in the glossary.
272	60678	13	15	39	15	41	The citation for Zambia is correct but somehow misleading: the urban poor are expected to add a large number of new, exposed poor because of the rapid rates of urbanization, but poverty (and vulnerability to climate change) are much more prevalent in rural areas (74% as contrasted to an urban poverty rate of 35%) according to the World Bank (2012). Zambia Poverty Assessment. (Sofia Bettencourt, World Bank)	We now mention high poverty in rural areas remaining high.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
273	73605	13	15	52	15	53	The authors should include the actual results of the Devitt and Tol (2012) here, otherwise the sentence is not very informative. (UNITED STATES OF AMERICA)	The results are that the authors project these climate-conflict poverty traps. The sentence have been slightly reworded.
274	73606	13	16	3	16	7	This logic of this section doesn't make sense. It states that people will be prevented from practicing agriculture due to heat stress, but then says that women will be disproportionately impacted by heat stress due to their agricultural activities. It can't be both - please revise. (UNITED STATES OF AMERICA)	The order of argumentation in this paragraph has been revised.
275	73607	13	16	14	18	43	In general, the sections are well-written, but there seems to be a lack of balance. The text often reads as overly negative on the impacts of climate change mitigation, and does not offer many positive examples from the literature. (This may be warranted in the case of CDM, but in REDD+ and other areas the picture is likely not as uniformly negative.) It is also important to acknowledge that climate change mitigation is a relatively recent development, and it is probably too early to reach any definitive conclusions on the pros and cons of mitigation for poverty. More caveats and caution would be advisable here. 13.3.1.1: This section is a bit lean, especially when compared with the structure of 13.3.1.4. It would benefit from a more detailed and specific discussion of why the CDM has failed to reduce poverty and contribute to sustainable development. Examples are that CDM: - focused on lowest-cost options that may have little development benefit - failed to transfer advanced technologies - projects were disproportionately located in larger, relatively wealthier developing countries like Brazil and China - often focused on sectors less likely to directly benefit the poor, and had fewer projects in AFOLU (other than biogas 13.3.1.2: The initial comments related to including only negative examples and drawing negative conclusions from a limited number of samples apply, and REDD+ remains a very recent concept. There is however an extensive literature on Protected Areas, which although outside of formal REDD+ frameworks, have preserved carbon and reduced poverty in some cases. Including and drawing lessons from such examples could help to inform the discussion. 13.3.1.3: The suggestion that voluntary carbon offsets "may be better at reaching poor communities" compared to other mitigation schemes seems questionable, especially in light of the experience with REDD+ "carbon cowboys" and other cases. Additional explanation would be helpful here. 13.3.1.4: This section appears disproportionately long compared with the previous three sections above; the reasons for this are unclear given the relatively minor role of biofuels in the mix of mitigation measures in many countries. There also appears to be a lack of balance in this section. (UNITED STATES OF AMERICA)	We have revised the text on REDD+ to incorporate some examples of positive outcomes. We have also indicated that the impacts are more likely to be negative when mitigation responses hinge on non-agricultural, land-based terrestrial emissions reduction. We have also incorporated text on positive effects of protected areas and community based forest management on mitigation and livelihoods. These changes have increased the length of section 13.3.1.1 somewhat and included new text and references to add nuance to the discussion of REDD+ and CDM as suggested. We have also included more recent literature that strengthens our arguments.
276	58271	13	16	26	16	32	Rapid reduction have more great impact on the poor. Climate change cut down development speed for the poor, but increase investment cost onlt for the rich.GC) For there is less description on the detailed detriments, suggest to increase the followed sentence after "... Hertel and Rosch,2010)" or accept such meanings in this paragraph: Mitigating climate change will increase living costs and will decline living standards (Jacoby et al., 1997). The poor people will face more difficulties for the higher energy prices resulted by the carbon emission reduction policy. These poor and vulnerable groups should be given special consideration when designing a new climate change mitigation policy (Qu et al., 2013).References:)Jacoby Henry D, Eckaus Richard S, Ellerman A Denny, Prinn Ronald G, Reiner David M, Yang Zili. CO2 emissions limits: Economic adjustments and the distribution of burdens. Energy Journal, 1997, 18(3): 31-58. Jiansheng Qu, Jingjing Zeng, Yan Li, QinWang, Tek Maraseni, Lihua Zhang, Zhiqiang Zhang, Abigail Clarke-Sather. Household carbon dioxide emissions from peasants and herdsman in northwestern arid-alpine regions, China. Energy Policy, 2013, 57: 133-140. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	We don't fully understand this comment, but we address energy access in Box 13-2.
277	73608	13	16	26	16	32	The scope of mitigation responses chosen to consider are quite narrow. Although in early stages, efforts to improve Low Emission Development Planning and potential support for National Appropriate Mitigation actions, both offer important ways of helping developing countries improve development leading to improved livelihoods and reduced poverty while also identifying opportunities to reduce emissions as well as other associated negative impacts (e.g. health considerations, unsustainable use of natural resources, impacts to watersheds etc.) While the evidence that policies aimed at mitigating climate have so far not provided substantial poverty reduction is quite high, the cited evidence does not substantiate the claim made here that polices are often detrimental to poor people and their livelihoods. The cited literature and examples do point out many of the potential risks, but do not generally show actual harm -except with respect to Biofuel production, where specific impacts are shown. Voluntary Carbon Offsets and REDD+ are both in very early stages and drawing a clear conclusion of impact does not seem supported by the literature. (UNITED STATES OF AMERICA)	We have focused in the chapter on available evidence and observed effects of mitigation and adaptation responses. We believe a discussion of early-stage efforts such as low emission development planning, and NAMAs will be too speculative. We have modified the conclusion that there have been substantial negative effects of mitigation actions on poverty and livelihoods, and instead reframed the effects as not being mixed and sometimes negative.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
278	69175	13	16	31	16	32	This is too generalised and too definite. And the high confidence contradicts with the identified major research gap as specified in lines 23 - 25 on page 23 (section 13.5) (NETHERLANDS)	We have revised the introductory paragraph to this section, and say that "evidence of positive outcomes is limited", despite synergies identified in the literature.
279	73609	13	16	31	16	32	While the design of mitigation responses have often proved detrimental to the poor, this section emphasizes the role of the poor as victim rather than agent and a proven asset in properly designed participatory forest and land use management programs. See <a href="http://www.cifor.org/online-library/browse/view-publication/publication/3461.html">http://www.cifor.org/online-library/browse/view-publication/publication/3461.html</a> and <a href="http://www.ecologyandsociety.org/vol13/iss2/art56/">http://www.ecologyandsociety.org/vol13/iss2/art56/</a> (UNITED STATES OF AMERICA)	We stress the importance of participating (community forests) in a following paragraph. The publications suggested are not particularly relevant here. They primarily show the importance of governance of forests, whether protected or managed by communities.
280	70445	13	16	37	16	38	Regarding CDM, please cross reference to Ch. 13 WG III. Delete "social...of" and "through...", and insert after "development" "... and thus CDM projects require approval by a designated national authority of the host country" (nothing in the CDM modalities and procedures requires assessment according 15 indicators) . (Axel Michaelowa, University of Zurich)	We now refer to Ch 13 in WGIII and have deleted "social". The entire first sentence of this section has been rephrased.
281	67870	13	16	39	16	40	Please add Vietnam after China as an example of biogas digesters. Related link is below. ( <a href="https://cdm.unfccc.int/Projects/DB/JACO1335502236.58/view">https://cdm.unfccc.int/Projects/DB/JACO1335502236.58/view</a> ) (JAPAN)	Done.
282	73610	13	16	44	16	54	An addition, an often cited issue leading to low performance on the sustainable development criteria is that the CDM does not have any requirements for monitoring and verification of sustainable development impacts the way that it is required for emissions reductions. (UNITED STATES OF AMERICA)	This is a very good point, and we have incorporated this in the text.
283	70446	13	16	46	16	46	Ethical dilemmas and unspecified "obstacles" are not a shortcoming of the CDM as such, but a generic criticism of the concept of offsetting GHG emissions. Delete, as these issues have been treated comprehensively in Ch. 13 WG III (Axel Michaelowa, University of Zurich)	Point taken. We have replaced the term shortcomings with critique.
284	70451	13	16	49	16	49	Substitute text by "While some authors (Shin 2010, Corbera and Jover 2011) see the CDM undermining local and non-governmental voices, others (Michaelowa and Buen 2012) stress that the CDM is a fully transparent mechanism which requires local stakeholders to be heard." Full reference: Michaelowa, Jorund; Michaelowa, Axel (2012): The CDM gold rush, in: Michaelowa, A. (ed.): Carbon markets or climate finance?, Routledge, Abingdon, p. 1-38. (Axel Michaelowa, University of Zurich)	This paragraph is not discussing the process through which CDM projects are selected, and the transparency of the CDM is not the point of discussion - it is the poverty and sustainable development impacts of CDM. Even if CDM is formally fully transparent, that does not translate into positive sustainable development outcomes. We have now referenced more of the available evidence on the limited sustainable development and pro-poor impacts of CDM - see response to comment 286 below. We have also referred to the suggested article.
285	69176	13	16	52	16	53	Boyd and Juhola (2009) don't conclude that 'only a few CDM programmes have shown positive impacts for poor communities, such as one in Peru that enhanced health and employment'. In fact they refer to a study that says 'Development theory has yet to conceptualise or evaluate what these mechanisms (CDM and REDD) mean for governing or delivering benefits to the poor. Although some applied research has been done it is far from comprehensive'. (NETHERLANDS)	It is not Boyd and Juhola (2009) that we are citing in support of the conclusion about only a few CDM projects benefitting the poor - it is Boyd and Goodman (2011), a later publication, and Subbarao and Lloyd. We have rewritten the sentence to make this clear, and also added new references.
286	81129	13	17	3	0	0	Authors may wish to add a table with advantages, disadvantages, stages of implementation, assessment, evaluation, with specific regions and sector information, also mentioning the emphasis of the study, Future prospects of the mechanisms, etc. (Monalisa Chatterjee, IPCC WGII TSU)	Given the space limitations, we did not consider this feasible.
287	73611	13	17	3	17	28	This section makes no mention of the risks associated with land grabbing or the gender dimensions of REDD+ as they relate to poverty. (UNITED STATES OF AMERICA)	The available evidence on the relationship between land grabbing and REDD+ is poor. There is better evidence on land grabbing in general, and we discuss this in the text.
288	69177	13	17	5	17	5	UN' (before REDD+) should be deleted to avoid misunderstanding that this is about the UN REDD programme of UNEP, UNDP and FAO (NETHERLANDS)	We have deleted UN as recommended
289	73612	13	17	5	17	5	Suggest that the authors delete "UN" as this sentence is presumably referring to REDD+ as a whole and not just the UN-REDD program (UNITED STATES OF AMERICA)	We have deleted UN as recommended

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
290	82609	13	17	5	17	5	I am wondering if the mention of "adversely affect" in this statement is sufficiently balanced given the nature of the (limited) evidence assessed in the section. Would it be appropriate to also mention potential for mixed and/or positive impacts? (Katharine Mach, IPCC WGII TSU)	We have deleted the first sentence.
291	79958	13	17	5	17	7	It seems highly inconsistent to make a broad, negative generalization in the first line ("may adversely affect"), then conclude in the next line that experience to date is inadequate to permit broad generalisations. Consider to delete first sentence, alte (NORWAY)	We have deleted the first sentence.
292	73613	13	17	5	17	28	This section seems to focus on negative impacts or REDD+ without providing similar detail on potential positive aspects. The section correctly highlights the paucity of information available on the impacts of REDD+ on poverty alleviation. The study cited (Caplow et al 2011) is focused on relatively small scale projects that may not be relevant to the development of national REDD+ strategy development and implementation, being discussed in the context of the UNFCCC, the positive impacts in terms of increased country capacity to better monitor and manage forest resources and development of stakeholder processes to discuss land use issues are not included (peer reviewed literature assessing national capacity improvements are notably limited due to how recent much of the work in this area is). Other potential positive impacts of stimulating economic activities such as making community based sustainable forest management more financially viable that benefit poor and rural communities are not included as potential benefits. While the potential risks to local populations and Indigenous peoples of loss of resource rights are adequately highlighted and important, similar citations discussing the potential benefits of REDD+ implementation to help improve uncertain land tenure and resource rights are not included. The section does a good job at highlighting the important challenge of working with developing countries and communities in a very uncertain system. The discussion of carbon credit buyers (line 23) is not really relevant here however and probably belongs in the voluntary carbon offset section. (UNITED STATES OF AMERICA)	In fact, we have mentioned some of the work that identifies positive effects of REDD+. Given the space limitations on the overall chapter, it is not possible to expand the discussion in the manner suggested by this comment.
293	79959	13	17	6	17	6	The sentence equals "forest carbon projects" with REDD+, which should be avoided. REDD+, as currently negotiated under the UNFCCC, implies a national or subnational approach to reducing emissions from, or enhance carbon storage in, forests. Hence, REDD+ i (NORWAY)	We have now explicitly distinguished between carbon forestry and REDD+.
294	79960	13	17	8	17	8	It should be explicitly recognized that the study by Caplow et al focused on pre-REDD+ avoided deforestation projects, to suggest possible improvements in learning from such pilot activities. (NORWAY)	We have qualified the sentence to make this point explicit
295	79961	13	17	11	17	23	The summary of findings from pre-REDD+ studies is highly imbalanced. The first line recognizes that some studies show favorable results in terms of poverty alleviations, whereas lines 12 – 23 list the potential negative impacts. The potential negatives ar (NORWAY)	It appears imbalanced because we have sought to represent the available evidence on the subject, and the evidence does not show much positive impact of REDD+ at present.
296	69178	13	17	18	17	23	This section has an undeserved negative undertone. For example, by using the word 'also' in line 19, the sentence implies that voluntary bilateral and public-private processes have negative impacts and a global REDD+ mechanism would not. And other example: the fact that benefit flows may not target the poor doesn't necessarily mean that REDD+ has negative impacts on the poor (NETHERLANDS)	We do not see why the use of "also" in this sentence suggests anything about the positive poverty impacts of a global REDD+ mechanism. The sentence simply says that without such a mechanism, progress on REDD+ will occur through private-public processes; and that this means that the price of carbon will vary and fluctuate. But nevertheless, the word "also" has been removed.
297	73614	13	17	21	17	23	It is unclear why uncertainty in the carbon price is "to the advantage of carbon credit buyers rather than the poor." Please explain or drop that part of the sentence. Is it really to the advantage of the buyers, or just that the buyers have greater coping ability? Also, how is this market different from any other where seller and buyer have certain advantages and disadvantages? (UNITED STATES OF AMERICA)	We have removed this sentence.
298	73615	13	17	21	17	23	The sentence that begins ("Without a global.....") does not appear to be policy neutral. (UNITED STATES OF AMERICA)	We believe it is policy neutral because it is stating the implications of not having a global mechanism - not that such a mechanism should be adopted.
299	79962	13	17	27	17	28	This sentence is stating the obvious. Please consider rephrasing, e.g.: "Given the potential positive effects, but also the latent adverse impacts, of REDD+ on poverty alleviation and social development, such safeguards are highly appropriate and should b (NORWAY)	We don't agree that this sentence is stating the obvious. The suggested phrase has not been inserted because it is on the verge of policy prescriptive.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
300	73616	13	17	33	17	49	The evidence that voluntary carbon markets support for small project is more likely to have a positive impact on poor populations does not seem well substantiated. (UNITED STATES OF AMERICA)	We have included a reference that substantiates the claim.
301	73617	13	18	3	18	50	The potential risks to poor populations of biofuel production via increasing food prices and land acquisition are well documented and discussed; the overall impact on economies is less thoroughly analyzed however. Opportunities and potential for policies that could encourage pro-poor biofuel production would be useful. (UNITED STATES OF AMERICA)	The impacts of biofuels on economies is outside the scope of this chapter. It would be more relevant in Chapter 10 and in WGIII.
302	82610	13	18	16	18	16	"high agreement" on this line should be italicized. (Katharine Mach, IPCC WGII TSU)	Corrected.
303	73618	13	18	17	18	19	I find the dichotomy between "statistical modeling" and "economic modeling" confusing. I can think of it in two ways: One would be an attempt to distinguish correlation studies from econometric studies, both of which perform statistics on datasets (with the latter focused on causality) -- the other would be to distinguish correlation and econometric studies from simulation models built on economic foundations. Suggest the author of this section clarify what is meant, as it would affect how one would weight the validity of the two sets of estimates. (UNITED STATES OF AMERICA)	We have revised the text - taken out the statistical modeling - and included more recent references.
304	73619	13	18	19	18	21	Cited reference does not support statement in text. Text says "Several studies link the 2007/8 price spike to speculation in agricultural futures markets ....driven partly by potential future profits from biofuels." But here's what the cited reference says - From Trostle 2011: "Thus, while the expansion of biofuels was an important factor underlying the general rise of food commodity prices in 2002-06 and their movement to a higher plane, it is less clear how much additional impact biofuels had during the subsequent 2007-08 spike in prices, as evidenced by biofuels' continued and growing presence through both the upside and downside of the spike." (UNITED STATES OF AMERICA)	We have revised the text and included more recent references. See above.
305	60679	13	18	23	18	33	Paradoxically, in some flood plains such as the Lower Limpopo in Mozambique, the policy of attracting large commercial landholders or medium-scale landholders may, over the long term, contribute to lower population exposure, as the small-holder irrigation development is a "pull" factor attracting people to the floodplain. This doesn't mean it is overall the right policy, but it may have unintended benefits. (Sofia Bettencourt, World Bank)	We are unsure how this comment is relevant in this section.
306	81130	13	18	46	0	0	Authors may wish to add some mid term/long term future framing in this discussion. (Monalisa Chatterjee, IPCC WGII TSU)	We have included "near-term" in front of "mitigation responses". This should clarify it.
307	81131	13	19	1	0	0	It may be useful if the difference between climate response policies and planned adaptation is provided for the reader. (Monalisa Chatterjee, IPCC WGII TSU)	We believe that this is sufficiently clear.
308	81132	13	19	1	0	0	Perhaps a table could compare climate response, planned and autonomous policies. (Monalisa Chatterjee, IPCC WGII TSU)	We have decided not to insert a table here. Adaptation is not our primary focus.
309	70454	13	19	5	19	5	Term "market mechanism" is misleading, as it means tradeable credits in the mitigation terminology. Please substitute by "market responses". (Axel Michaelowa, University of Zurich)	The comment is accepted and text changed.
310	73620	13	19	11	19	12	This point is rather obvious, as risk reduction strategies nearly always involve a trade-off with higher-income activities. The key point is whether this tradeoff is in some way dire, or pushes people into poverty traps (an example of which is noted farther down on line 39-41). (UNITED STATES OF AMERICA)	The text has been revised and this comment has been considered.
311	60680	13	19	18	19	24	This assessment of completed adaptation projects (by the Independent Evaluation Group of the World Bank) did not directly appraise the effects on poverty and livelihoods, because the projects themselves were relatively small pilots, without the resources to do the periodic panel survey data needed to assess poverty trends, or the periodic change in asset exposure required to monitor trends in vulnerable population. These factors have proven to be extremely difficult to monitor in data-scarce countries (Kiribati, for example, did not even have a baseline poverty assessment). Periodic household poverty assessments could be used for this, but they are generally not quantifiable at the lower than province or district basis. We are trying to implement a sample survey methodology in the Barotse flood plain under the Zambia Pilot Program for Climate Resilience Program, but this can only realistically be carried out every few years. (Sofia Bettencourt, World Bank)	This comment confirms the problems we describe in the text.
312	81133	13	19	27	0	0	It will be useful if the status of insurance mechanisms in different regions is mentioned here. (Monalisa Chatterjee, IPCC WGII TSU)	We refer the readers to Chapter 10 where there is a more comprehensive treatment of insurance mechanisms.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
313	73621	13	19	27	19	47	It is suggested that the authors review the following citations that look at impact of insurance on poverty: <a href="http://www.ilo.org/public/english/employment/mifacility/download/repaper31.pdf">http://www.ilo.org/public/english/employment/mifacility/download/repaper31.pdf</a> (grey literature) and an Karlan, D. Osei, R.D., Osei-Akoto, I., Udry, C. 2012. Agricultural Decisions after Relaxing Credit and Risk Constraints. NBER Working Paper No. 18463; this is peer reviewed and very prestigious, so the standard protocol for economists is that it is citable. (UNITED STATES OF AMERICA)	We have inserted the suggested reference.
314	60681	13	19	37	19	47	You may want to refer here to the HARITA pilot in Ethiopia, introduced by Oxfam America and partners (Swiss Re, REST, IRI, Nyala Insurance and others) who piloted the Horn of Africa Risk Transfer for Adaptation (HARITA) program in Ethiopia. It added an insurance-for-labor option to the productive safety net program (PSNP) in Ethiopia. Farmers unable to pay for premiums were allowed to contribute labor instead, which was directed towards risk reduction. I don't have a copy of the original publications, but believe the pilot is quoted on several available publications. (Sofia Bettencourt, World Bank)	We have incorporated a reference for the HARITA project: Tadesse and Brans 2012.
315	73622	13	19	37	19	47	Line 38 cites informal risk management, and it is suggested that authors include one or more examples of this. A good example of this is the mobility common to pastoralists' customary governance systems, moving livestock between dry and wet season grazing areas and watering points. When mobility is allowed to function, risks from climate variability and extremes is greatly mitigated. Cite: IIED/SOS Sahel. 2010. Modern and mobile. The future of livestock production in Africa's drylands. H. de Jode, ed. International Inst. of Environment (IIED) & SOS Sahel Int. UK. 88 p. <a href="http://www.iied.org/pubs/pdfs/12565IIED.pdf">http://www.iied.org/pubs/pdfs/12565IIED.pdf</a> (UNITED STATES OF AMERICA)	We have inserted the suggested reference.
316	73623	13	19	46	19	47	It is not well substantiated in the literature that the demand for new insurance products in developing countries is actually low. The low demand papers typically don't find low demand compared to commercial insurance take-up rates in the US. Additional studies on insurance demand: <a href="http://ageconsearch.umn.edu/bitstream/104022/2/Norton_AAEA.pdf">http://ageconsearch.umn.edu/bitstream/104022/2/Norton_AAEA.pdf</a> (this link is to an earlier version presented at a meeting; the authors are actively revising it to resubmit to a journal, which may be accepted by August, 2013) (UNITED STATES OF AMERICA)	We have revised the text to some extent that it does not explicitly say that the demand for insurances is low.
317	73624	13	19	52	20	3	Th logic of this section does not make sense. It seems to be saying that addressing poverty together with climate change is undesirable. Suggest that the authors revise to clarify their points. (UNITED STATES OF AMERICA)	The point is well taken and the text has been revised substantially.
318	73625	13	20	7	20	7	Do the authors really meant to refer to "all" weather events? In various parts of this document the term "weather event" is used when actually it probably should be "extreme weather event." Climate in this document, when paired with weather events - as in Line 7, is used in a similarly imprecise fashion. In the AR4 Glossary "weather events" is not defined. There is only a definition for "extreme weather events"; which would be a better term to use in this document - assuming that is that is what the authors meant. "Weather events" and "climate" should not be used to mean "extreme weather events" or climate change. (UNITED STATES OF AMERICA)	We have inserted a definition of the term "weather events and climate" at the beginning of Chapter 13. We use this as an umbrella term for climate change, climate variability, and extreme events, also including subtle shifts in precipitation and localized weather events.
319	64831	13	20	8	20	8	The concept of 'resilience' pops out of the blue without proper definition and framing. (JC Gaillard, The University of Auckland)	We refer the readers to the Glossary.
320	64832	13	20	15	20	15	It is unclear why poor countries are likely to experience a continued decline in adaptive capacity. (JC Gaillard, The University of Auckland)	This point has been clarified.
321	73626	13	20	15	20	21	How does the phrase "for instance, project increasing inequality among continents" in line 16 relate to the first part of the sentence beginning on line 15? Suggest that the authors add the phrase "potential of four degrees" degrees of climate change to line 21. (UNITED STATES OF AMERICA)	The text has been revised and this comment has been considered.
322	81134	13	20	25	0	0	Coordinate with chapter 20 to ensure consistent coverage of topics and messages. (Monalisa Chatterjee, IPCC WGII TSU)	We cross-reference Ch 20 at the beginning of the section now, with the adaptation chapters 14-16.
323	60682	13	20	27	20	42	See above comment. In addition to the HARITA program, which sought to link risk transfer (micro-insurance) with an established safety net program aimed at the poorest, we are starting to work in Zambia under the Pilot Program for Climate Resilience on participatory adaptation community-driven development targeting the poorest and most food insecure. There are also attempts to incorporate climate adaptation into the Social Protection programs in Tanzania, and Madagascar (under the FID and PSDR programs). (Sofia Bettencourt, World Bank)	We have included a reference to the HARITA programme.
324	63626	13	20	27	20	42	You may want to have a look at Gray et al. (2007): Weathering the Storm - Options for Framing Adaptation and Development", World Resources Institute, as they follow a similar logic, if I understand your approach correctly. (GERMANY)	Yes, we know this publication, but our task was to focus on post 2007 evidence for AR5.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
325	73627	13	20	37	20	40	Suggest that the authors revise this language as it verges on being policy prescriptive. (UNITED STATES OF AMERICA)	We don't agree that this is policy prescriptive. It has a normative underpinning but it does not say HOW this should be achieved (which would have been policy prescriptive).
326	81135	13	20	46	0	0	Chapter 14 has a conceptual discussion on response options, perhaps coordinate? (Monalisa Chatterjee, IPCC WGII TSU)	We cross-reference Ch 14 in the introductory paragraph to 13.4.1.
327	76879	13	20	52	0	0	Add a sentence: "A more effective approach is to combine several instruments in comprehensive programs (HLPE 2012)". The reference is: HLPE, 2012. Social protection for food security. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2012. <a href="http://www.fao.org/cfs/cfs-hlpe/reports/en/">http://www.fao.org/cfs/cfs-hlpe/reports/en/</a> (Food and Agriculture Organization of the United Nations (FAO))	We believe that the references we have already included covers the issues raised by the suggested reference.
328	77124	13	20	52	20	54	"Cash transfer programs are among the principal instruments used by governments for poverty alleviation (Barrientos and Hulme 2008; Niño-Zarazúa 2010)." Their aim is also to reduce vulnerability. It is important to stress out that safety nets in the form of cash transfers aim to protect vulnerable populations from risk and prevent further deprivation. Furthermore, in order to achieve poverty alleviation, social protection needs other policy measures outside its realm such as legal reforms, macroeconomic stability, financial structures, political empowerment. Otherwise, on its own, they cannot achieve poverty reduction and even can entrench it leaving people in poverty traps. See: Sabates-Wheeler, R. and Devereux, S. (2011), 'Transforming Livelihoods for Resilient Futures: How to Facilitate Graduation in Social Protection Programmes' Future Agricultures Consortium. Working Paper 23. Lloyd-Sherlock, P. (2008), 'Doing a bit more for the poor? Social assistance in Latin America', Journal of Social Policy 37(4), pp. 621-639. Shepherd A., Marcus R., Barrientos A. (2004). Policy Paper on Social Protection, Overseas Development Institute for DFID. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	This point is well taken and we believe it is captured by the preceding sentence " ..., protect against livelihood risks, and raise the social status and rights of the marginalized "
329	77125	13	20	54	21	2	"However, at the regional and municipal level, SP does not....to proactively address climate change risks and take action." This statement is not clear. Is this the role of SP? Consider describing first adaptive social protection and then talk about the things that it does not address. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have revised the text and clarified.
330	77126	13	21	4	21	4	define "pro-poor climate change adaptation", for example: 'poverty-focused measures and providing poor individuals, households and communities with the right incentives, tools and capacity to adapt; and addressing the market failures and barriers that constrain autonomous adaptation' (Vernon, T. 2008, 'The Economic Case for Pro-Poor Adaptation: What do we Know?', IDS Bulletin 39.4, p. 37.) (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We feel that "pro-poor" is a well established concept.
331	60683	13	21	4	21	14	The Child Grant program in Zambia supported by DFID also seems to have had a positive expected impact on food security. I'm sending the evaluation report separately. Part of the problem is how to tie up SPs that are reliant on cash transfers to what is essentially an adaptation PROCESS. Experience from Ethiopia and Madagascar suggests that this may be easier when the SP is reliant on specific sub-grants (e.g. for productive investments or social infrastructure) rather than through cash transfers. However, I know of no publication that has assessed this systematically. (Sofia Bettencourt, World Bank)	We have not found any references covering the suggested project
332	77127	13	21	5	21	9	"ASPs have almost exclusively focused on LICs and some MICs....understanding of dynamic livelihood trajectories". Because social protection is mainly a system of developing countries. Consider developing further context and an explanation of why social protection systems could be very relevant for climate change adaptation, in a context where poor populations in developing countries are more at risk. Also it should be stressed out that ASP is a theoretical framework rather than a specific type of policy that has already been developed. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have expounded this section somewhat to explain how social protection schemes could be relevant for adaptation to CC. We also emphasize the practical rift between climate change policy and development agendas.
333	77128	13	21	9	21	9	"one of the most successful SPs". Successful for poverty reduction?, vulnerability reduction? Based on what criteria or indicators? Consider delete statement. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	The statement has been removed.
334	77129	13	21	11	21	11	"Yet, this and programs such as ...". Clarify "programmes". Is it a specific type of programme such as CCTs or payment for environmental services? Depending on the type of social protection measure it will have different implications for poverty reduction, vulnerability reduction, climate change adaptation and long term resilience. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have clarified the text and inserted a reference describing the programme exemplified.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
335	77332	13	21	11	21	14	Differential insights into systemic vulnerability and pathways to sustainable livelihoods in Northeast Brazil are revealed in Sietz et al. (2006). Causes of vulnerability are differentiated at the municipal level together with entry points for sustainable development including improvements in natural and technological resources as well as financial support to enable investments in resources. These findings corroborate major national development efforts aimed at strengthening smallholder agriculture in Northeast Brazil. The findings provide valuable insights to make local adjustments to large-scale interventions. Moreover, changing hotspots of vulnerability revealed are suitable to inform the prioritisation of intervention options. However, the findings point to strict requirements for the aspired intensification of cash crops along the São Francisco River in order to avoid a further degradation of the natural resources. REFERENCE: Sietz, D., Untied, B., Walkenhorst, O., Lüdeke, MKB., Mertins, G., Petschel-Held, G. and Schellnhuber, HJ. (2006) Smallholder agriculture in Northeast Brazil: Assessing heterogeneous human-environmental dynamics. Reg. Environ. Chang. 6(3): 132-146. (diana sietz, Wageningen University)	The reference does not fit very well here since this section deals with particular programmes.
336	77130	13	21	13	21	13	"...though they stress the role of local governments in addressing livelihood security and resilience in the long term.." I don't think "the role of local governments" is the most relevant aspect for addressing livelihoods security and resilience through social protection. At least with these examples I would say that is the aspect of investment on human capital of young generations (Bolsa Família), but still there is no evidence to sustain this. (ANA SOLORZANO-SANCHEZ, INSTITUTE OF DEVELOPMENT STUDIES)	We have revised the text and also added a reference to strengthen the argument.
337	64833	13	21	16	21	30	The para on DRR is weak. It needs to emphasise small scale events which have proved more damaging than extreme disasters (see the UN Global Assessment Reports, which seem to be cited but do not appear in bibliography). The whole argument is also skewed as DRR should include CCA and not the other way around. The scope of DRR being much broader than that of CCA. It is also unclear why there is a reference to the 2011 Japanese earthquake which has nothing to do with climate change. (JC Gaillard, The University of Auckland)	We have included a sentence and reference on the importance of small-scale events.
338	73628	13	21	37	21	38	The bulk of the paragraph preceding the final sentence is talking about renewable energy as a climate-resilient pathway to realizing the poverty-reducing goals of renewable energy access. The statement casting doubt on the differential job creation ability of renewable energy is irrelevant to this discussion -- getting energy access is the important part of poverty alleviation. The renewable side is what's important for the climate. The poverty alleviating impacts of renewable energy access do not come from the fact that it is renewable energy and people are employed in renewable energy -- it comes from the fact that they have energy access. Suggest that the authors consider deleting the last sentence. (UNITED STATES OF AMERICA)	We have modified the last sentence to increase clarity.
339	62881	13	21	43	22	23	This section on Towards climate-resilient development pathways is rather disappointing as it simply points to things that need to be done to move towards a climate resilient future. without subjecting them to any critical attention. Rather, the authors call for a re-think of poverty and development that focuses on ways to bring poor and non-poor closer together to solve common problems. No suggestions are made as to how this might realistically be achieved. In my view, the richer nations are playing a political game to ensure that they come out as 'winners' in a warmer world and that can mean letting the worst impacts of CC be experienced by the poorest in the poor and not-so-poor countries. If this is true, then a much great focus should be given on how to mobilise the marginalised to oppose/challenge the political and economic elites in poor and non-poor countries. The chapter gives almost no attention to such mobilisation or the conditions that might promote it. (Bob Pokrant, Curtin University)	Even we are sympathetic with this comment, we would risk being policy prescriptive to talk about what should be done.
340	81136	13	21	52	22	23	The discussion focuses on very short term future in some places, perhaps authors may wish to add a brief discussion on mid-term and long term future possibilities under eras of responsibilities and options. (Monalisa Chatterjee, IPCC WGII TSU)	Ok, we have included statements about near, mid-, and long-term, where appropriate.
341	65502	13	22	0	23	0	Climate extremes deprive the farming communities of their standing crops and force them to go for Off-Farm income to meet their livelihoods, since agriculture is a major source of earning in the developing South Asian region. Much less data/information on these issues are available. This concern is also needed to be documented in Section 13.5 "Synthesis and Research Gaps" (Arif Goheer, Global Change Impact Studies Centre (GCISC))	This is an important issue, but we feel this is better placed in Chapter 12 (human security).
342	73629	13	22	6	22	7	Suggest that the authors revise this sentence as it verges on being policy prescriptive. (UNITED STATES OF AMERICA)	We don't agree that this is policy prescriptive. It has a normative underpinning but it does not say HOW this should be achieved (which would have been policy prescriptive).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
343	85166	13	22	21	22	23	This paragraph emphasized that both the rich and the poor population should mitigation to reduce climate change. This option does not correspond exactly with the United Nations Framework Convention. This paragraph should in accordance with Article III of the United Nations Framework on Climate Change Convention to highlight common but differentiated responsibilities, stressed that the developed country Parties should take the lead in combating climate change and its adverse effects. (Hongmei Xu, National Climate Center,CMA)	We beg to disagree. Our findings represent the state-of-the-art knowledge in the literature and do not have to be in accordance with current policy.
344	79578	13	22	22	22	23	Strong statement on evidence demonstrating a need for 'equity among the poor and non-poor' - which builds on theme of equity repeated throughout. Careful to ensure language is not ideological but evidence based. Suggest sticking to language as used later on same page (line 38) re 'reducing entrenched inequalities'. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Our assessment has a normative foundation, which is not the same as being policy prescriptive. Only if we suggest HOW this should be achieved are we prescriptive.
345	61339	13	22	28	22	39	Yes we need to know more - BUT here is a chance to summarise what we could safely say - ie that the poorest need better rights-based protection for their livelihoods, and livelihood options. This includes tenure security and decentralised land use management; water and CPR rights at community level; protection against rapacious economic practices that further marginalise the poor, conflict management measures, improved service provision and so on... (European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)	We conclude by saying that "Neither alleviating poverty nor decreasing vulnerabilities to climate change can be achieved unless entrenched inequalities are reduced". It is beyond the scope of this chapter to give a comprehensive treatment of remedies.
346	85167	13	22	38	22	38	The expression about "..... Often do not benefit the world's poor" is too absolute, li is suggested change to "some climate change policy responses do not Necessarily better the poor. (Hongmei Xu, National Climate Center,CMA)	We retain "often do not benefit poor people". This is in accordance with the findings from our assessment.
347	73630	13	22	48	22	51	At minimum, this sentence needs to start with "Key assumptions in MANY economic models". As written, the sentence suggests that those assumptions apply to economic models generally, which is not the case - including in some of the literature this chapter cites. (UNITED STATES OF AMERICA)	Corrected.
348	62882	13	22	52	23	2	The emphasis on the need for more longitudinal studies is well made as it is very difficult to both understand and measure the impacts of climate change through short-stay studies. Such an emphasis, however, is expensive and requires large teams of dedicated researchers willing to devote 5 to 10 years or more studying selected communities. (Bob Pokrant, Curtin University)	True, but it is a gap in the current literature and in our understanding of impacts of climate change on livelihoods.
349	62883	13	23	3	23	8	I would add here the importance of understanding the global politics of climate change in which the wealthy of poorer countries can use global equity arguments to legitimate their own lack of action in terms of their lifestyles and wealth accumulation. Such concerns have been raised by several NGOs in India on this matter. (Bob Pokrant, Curtin University)	We feel that such research is important but it may be more relevant in the chapter on key economic sectors (Ch 10) as well as in several chapters of WG3.
350	73631	13	23	14	23	14	Please explain what is meant by "small" disasters. (UNITED STATES OF AMERICA)	The text has been revised.
351	73632	13	23	21	23	21	Presumably the authors are referring to a future average increase of four degrees under climate change, but as written the text is not clear. This ambiguity was also repeated in the Summary for Policy Makers (page 13, line 23 and again on page 16, line 6) (UNITED STATES OF AMERICA)	The text has been revised to improve clarity.
352	82611	13	23	21	23	21	Would it be most accurate to say "such as under potential global mean warming of 4°C and beyond"? (Katharine Mach, IPCC WGII TSU)	The text has been revised according to the suggestion.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
353	73633	13	23	24	0	0	Section 13.2.2: The authors should consider adding an additional study that was not mentioned here, which looked at effects of a four degree celsius mean global temperature increase: Tropical countries are likely to experience a large share of the negative impacts due to unprecedented high temperature extremes. Sea-level rise may be 15-20% larger in the tropics than the global mean. Increases in tropical cyclone intensity will be largest at low latitudes. Increasing aridity and drought are likely in many developing countries in the tropics and sub-tropics. At the same time, the distribution of the rainfall may become more concentrated, increasing the risk of flooding. Floods, droughts, and higher temperatures may reduce crop yields. Changes in nutrient availability and the prevalence of crop pests and diseases may further affect agriculture. An increase in the average global temperature of four degrees Celsius would not have evenly distributed effects. It could cause increases of six to ten degrees Celsius in average monthly summer temperatures in some areas. Mean annual runoff in monsoon-dominated rivers such as the Ganges and Nile may increase 40%. Yet, water scarcity may increase in southern Africa, Brazil, and South Asia. Mean sea level rise in the tropics may be 20% higher than the global average of 0.5 to 1.0 meters. Some of the cities most vulnerable to flooding from sea-level rise are in Mozambique, Madagascar, Mexico, Venezuela, India, Bangladesh, Indonesia, the Philippines, and Vietnam. Salt water intrusion may adversely affect the quality of aquifers needed for drinking water and irrigation. Atmospheric carbon dioxide levels corresponding in the "four degree world" could increase ocean acidity 150%, with adverse effects on coral reefs vital for fish nurseries and protection against coastal floods and storm surges. Negative impacts on tropical forests and biodiversity impacts are also likely. The human health effects that have been analyzed most include rates of malaria and diarrheal disease. Flooding may contaminate drinking water supplies with pathogens. Other vector-borne diseases may increase in some areas. Under-nutrition from declining crop yields and incomes and temperature stresses may exacerbate health problems. Increases in extreme weather events may lead to more deaths from floods, tsunamis, landslides, and heat stroke. Political conflicts over water resources may also increase deaths and severe injury rates. Potsdam Institute for Climate Impact Research and Climate Analytics. 2012. Turn Down the Heat: Why a Four Degree Celsius Warmer World Must be Avoided. Washington, DC: Prepared for the World Bank. (UNITED STATES OF AMERICA)	We refer to this important and comprehensive study at the end of section 13.4.
354	81137	13	23	33	23	45	FAQ 13-1 use of threat multiplier may be an effective way of capturing a wide audience. (Monalisa Chatterjee, IPCC WGII TSU)	We have significantly revised the text to make it more readable and included the term threat multiplier. The FAQs have also been re-ordered in order to fit the flow of the text.
355	73634	13	23	36	23	37	"Climate change intersects with the multidimensional facets of poverty to drive not only income poverty, but also undermine wellbeing, agency, and a sense of belonging." A model describing these interactions would be useful here. (UNITED STATES OF AMERICA)	The FAQs will be placed in the main text and this FAQ will be close to a relevant illustration.
356	81138	13	23	47	24	10	FAQ 13-2 The figure 13-5 here is useful to combine multiple stressors and policy action over time. There is potential of linking the messages from figure 13-2, 13-3 with this figure here to synthesize the discussion on interacting livelihood, environment (annual and long term) and policy trajectories. From the policy perspective it will be useful if the interactions between these are explained conceptually. It may be also useful to think of this exercise in reference with mid term and long term characterization of future used in the report. The potential of the figure is not adequately utilized here. (Monalisa Chatterjee, IPCC WGII TSU)	We agree. The FAQs will be placed in the main text for easier reference to relevant illustration.
357	85134	13	24	12	24	24	The answer to this FAQ 13.3 should be revised to make it shorter and clearer (to avoid confusing). The answer should be shorten by focusing on the "unintended negative consequences of climate change policies" only. In particular the sentence "Conversion of presumably marginal or idle land in countries in Africa, Latin America, and Southeast Asia has contributed to food price increases and also has displaces smallholders' cropland" is not supported by appropriate evidence from published, peer-reviewed literature as appropriate and the sentence must be removed (unless citing a relevant publication) (MALAYSIA)	The text has been revised and clarified. We maintain that there is ample evidence that large-scale land acquisition has displaced farmers.
358	73635	13	24	17	24	18	How has the "Conversion of presumably marginal or idle land in countries in Africa, Latin America, and Southeast Asia contributed to food price increases and also displaced smallholders' croplands." If that land was not producing food anyway, then why a food price increase? Marginal or idle lands are usually desirable for biofuel crops because they are on land not competing for food crops. (UNITED STATES OF AMERICA)	The text has been revised and clarified.
359	58975	13	24	18	24	18	change displaces to displaced (Lindsay Stringer, University of Leeds)	The text has been revised.
360	73636	13	46	0	0	0	Table 13-1: Did the authors mean to use the word "Heartbreaking" here? (UNITED STATES OF AMERICA)	No, this was an oversight. It has been deleted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
361	81139	13	46	0	0	0	Table 13-1 Perhaps this table can be expanded to provide differential impacts across different categories, like rural/urban, men/women, LIC/MIC, race, age, perhaps also connect with differential impacts given in other chapters. (Monalisa Chatterjee, IPCC WGII TSU)	We now use 2 examples, Australia and India. We want to keep this table simple, not overload them with the same examples that we use in the box. Few articles describe gendered climate experiences, hence we use the 2 best examples we know.
362	82612	13	46	0	0	0	Table 13-1. Supporting citations should be provided for this table. Also, would it be more accurate to say "heartbreaking and/or physically demanding" given that the 1st example of feeding livestock is presumably not heartbreaking. (Katharine Mach, IPCC WGII TSU)	Supporting references now provided. We have removed the word heartbreaking.
363	58272	13	47	0	0	0	It has no reference in Fig.13-1. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	References now provided.
364	81140	13	47	0	0	0	Figure 13-1 Dashed line is not visible. The two figures should be seperated. Some description of what the figure is trying highlight should be given in the caption. Moroever, Poverty gap index should be explained. (Monalisa Chatterjee, IPCC WGII TSU)	We have dropped the confidence level bar to make the dashed line visible. We have made 2 panels and improved the figure caption.
365	81419	13	47	0	0	0	Figure 13-1: The author team should include a sentence in the figure caption explaining the main message of this figure. (Yuka Estrada, IPCC WGII TSU)	We have expanded the explanatory text in the figure caption.
366	81420	13	47	0	0	0	Figure 13-2: the figure caption should clarify that these are schematic diagrams. (Yuka Estrada, IPCC WGII TSU)	Done.
367	82613	13	47	0	0	0	Figure 13-1. It is not clear why Vietnam is illustrated in particular, as compared to the other countries in the plot. Is the goal to demonstrate variation within a given country? Further clarification in the figure caption would be helpful. Additionally, the definition of the poverty gap index could be clarified within the figure caption. (Katharine Mach, IPCC WGII TSU)	We now show 2 countries (Vietnam and Malawi. We have clarified meaning in the figure caption.
368	84672	13	47	0	0	0	Figure 13-1: The message of the figure is not clear. How should the reader interpret the variation across countries? Is the point of the inset that there is inhomogeneity within countries as well? It would be useful to clarify this. Also, the units of the inset map are very unclear. How do these units relate to the axes of the main figure? (Michael Mastrandrea, IPCC WGII TSU)	Yes, the point is to highlight differences within countries. The units in Panel B (added) do not relate to Panel A. See better figure caption.
369	63627	13	47	1	47	1	Figure 13-1: The map inset is not clear. Please explain what the Poverty Gap Index score is. Also ratio of poverty line of yearly expenditure per capita is not clear. Please explain. Furthermore, it could be reconsidered, if the map inset is actually necessary as it is not clear what the message is. (GERMANY)	See above.
370	58273	13	48	0	0	0	Fig. 13-2 is not clear. There is need more clear expression about this figure. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	We have improved the figure.
371	73637	13	48	0	0	0	Figure 13-2: The authors should consider deleting this figure in light of the fact that it seems too subjective with graph directions or trends regarding vulnerability or resilience shown without sufficient support. (UNITED STATES OF AMERICA)	We have improved the graphic and stress in the figure caption that this is an illustrative representation of four case studies, using the information provided in the articles. The point is not to reconstruct every up and down in stressors and livelihood conditions (actually not available in the literature) but to convey livelihood dynamics for different households.
372	73638	13	48	0	0	0	Figure 13-2: These graphs are complex and it is not clear whether they are hypothetical or reflect real data. It is also not clear how data were combined to derive them. (UNITED STATES OF AMERICA)	See above.
373	81141	13	48	0	0	0	Figure 13-2 Chapter 22 also provides the case study on lagos- perhaps coordinate? (Monalisa Chatterjee, IPCC WGII TSU)	We don't want to cross-reference in this Figure (already complex). But we think it's good that several chapters may be using case studies to bring home distinct points.
374	82614	13	48	0	0	0	Figure 13-2. In this figure, all "data" plotted in each graph are representative/illustrative, not strictly quantitative, if I am understanding correctly. If so, the chapter team should consider graphical options to better depict this. For example, I have seen slightly fuzzy lines used in some cases to indicate illustrative lines within a graph. (Katharine Mach, IPCC WGII TSU)	Thanks! We have played with more fuzzy options, and we like it. Figure caption now says explicitly "illustrative representation".

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
375	84673	13	48	0	0	0	Figure 13-2: This is an ambitious and information-rich figure, which succeeds in many ways while it also could still benefit from refinements. While I like the idea behind the "factor" lines in the upper half of each panel and I understand the reasoning behind having them jump around so much, I find their variability outside of the identified convergences distracting. Since they are illustrative rather than based on data, I would consider making them more stylized so that the highlighted convergences are clearly the only places where certain combinations of stressors and shocks occur. Currently, in some panels there are unhighlighted convergences of similar magnitude to those that are highlighted, or unhighlighted spikes in certain factors. Simplifying the presentation will more clearly focus the reader on the points you are trying to communicate. I would also suggest an expanded caption to explain the figure more fully and how to read each panel. (Michael Mastrandrea, IPCC WGII TSU)	We have made the lines more stylized. Expanded caption is available, and see responses to #371 and 374.
376	63628	13	48	1	48	1	Figure 13-2: While the narrative in the text is clear, the figures are confusing. It is not clear where the ups and downs in the lines come from. Is it that the numbers pointing at individual points on the lines refer to one individual example as described within the narrative, and the ups and downs show further incidents that are not described? Furthermore, it is not clear, what the red boxes are meant to indicate. Is it that at the same point in time when multiple stressors converge the states of well-being of different groups diverge? If so, write it down. If not, explain. (GERMANY)	See improvements above. Yes, the red boxes indicate convergence of multiple stressors and shocks. Impacts on livelihoods are shown in the lower panel of each case study.
377	58274	13	49	0	0	0	The color code is not conform to content in Fig. 13-3. I suggest to revise it. (Juqi Duan, National Climate Center, Chinese Meteorological Administration)	Color code has been revised.
378	73639	13	49	0	0	0	Figure 13-3: It is not clear if this figure represents business as usual, actual practices that occurred following climate change, or potential adaptation measures. (UNITED STATES OF AMERICA)	We have improved this figure. In the caption, we specify seasonal sensitivity of livelihoods to climatic and non-climatic stressors - it's the combination that matters. Our chapter is not just about climate change but about climate-related hazards. The figure is not about potential adaptation measures.
379	73640	13	49	0	0	0	Figure 13-4: This figure was indecipherable. While the overall concepts; their interaction; and the meaning of different dimensions was clear; the meaning of the arrows or triangles or flow through it conveyed was not. Suggest that the authors consider deleting this figure as it does not add clarity to the supporting text. (UNITED STATES OF AMERICA)	We have much improved this figure!
380	82615	13	49	0	0	0	Figure 13-4. For the box that states "exposure to climate change responses," I'm wondering if it is both exposure and lack of exposure that contribute to differential vulnerability. Since in many cases climate change responses should reduce risk, this point could be clarified. 2nd, I think is potentially confusing to have "vulnerable" on the adaptive capacity axis in addition to its placement within the ultimate outcome of "differential vulnerability." 3rd, I am wondering if "solution space" is the clearest word choice for what is meant. 4th, given the complexity of the diagram, it would be beneficial to explain its interpretation to the reader within the caption. Finally, I think the chapter team still might consider alternative visualizations for the same concepts. For example, one could imagine the intersecting axes presented as "the eye of a hurricane." In this option, the multicolored portion of the figure would essentially be rotated 90° into the page so that the dimensions of inequality would be slightly curved lines swirling toward the "eye of the hurricane." (Katharine Mach, IPCC WGII TSU)	After discussions at LAM4 and the help of the TSU, we have significantly improved this graphic, taking into account multiple perspectives and preferences. Vulnerability is only mentioned once, in the triangle of multidimensional vulnerability. We no longer talk about solution space but about Capacities & Opportunities, also given the language of the summary documents. We have played with alternative visualizations to reduce complexity (less words, clearer lines, less arrows). The version included in the final draft is very close to completion although some more cosmetic changes will follow in post-production. We considered "the eye of the hurricane" but settled for 2 intersecting triangles. It is true that there can be lack of exposure, but the shape of the revised arrows indicates that exposure is not necessarily equally distributed. It's coming together.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
381	84674	13	49	0	0	0	Figure 13-4: This is another ambitious and information-rich figure. There are a few aspects I would like to see refined further. First, the factors on the left side are relevant to all people, both privileged and marginalized and with both high and low adaptive capacity. Right now the factors seem to bypass the privileged and resilient. Second, I would recommend against characterizing the adaptive capacity axis as resilient vs. vulnerable, given that differential vulnerability is the overall outcome. Limited adaptive capacity contributes to vulnerability, but the point of the figure is that all these dimensions determine differential vulnerability, not just one. Third, I am not convinced that the gray boxes add to the figure sufficiently to warrant their inclusion, and may instead confuse the key points. Their current placement seems to imply that it is mostly the marginalized and those with limited adaptive capacity who will be exposed to climate change and experience the effects of climate change responses, but all people will be in different ways and to different extents. Given the consideration of exposure as separate from vulnerability in AR5 (e.g., c.f. Chapter 19), it may be clearer to leave out these elements. (Michael Mastrandrea, IPCC WGII TSU)	Please see revisions in the answer to #380 above. In the new version, privileged and marginalized, as well as resilient and at risk are above and below climate change/CC responses and development pathways, so visually outside the inequalities. To avoid double usage of "vulnerable", we call the revised axis resilient and at risk (also to match the strong risk focus across WGII). Gray boxes have been simplified but kept, only more visually integrated.
382	63630	13	49	0	49	0	Figure 13-4: replace "race" by "skin color". Ratio: it is scientifically proofed that whole humankind belongs to the same race. (GERMANY)	We use the word race as it is the dimension discussed in the context of intersecting dimensions of inequality. See response to # 5.
383	63629	13	49	1	49	1	Figure 13-4: The term "gender" should be replaced by the term "sex" (see also comment on TS p. 5 line 47). (GERMANY)	We do mean gender, and not sex. Our chapter is asked to address gender.
384	63631	13	50	0	0	0	This figure does not really shed light on the linkages between the multiple stressors and it is too simplifying - neoliberalism and the subsequent health and school fees as well as LSLA are surely not the only implications of globalization (what e.g. about international trade?). What does "lifetime" mean? Lifetime of whom? And what is the role of the grey-marked institutions? It looks like they do not do anything, but all the stressors just pass through the institutions. And what do the arrows under food crisis, dispossession, and displacement mean? And why do the large arrows (cc, globalization, and technological change) move in waves? What, e.g., about the mechanization of agriculture under technological change as a potentially positive effect? Consequence: Figure should be deleted. (GERMANY)	Both the figure and the accompanying text has been revised. The figure was simplified and there are now clearer references in the text to the figure.
385	73641	13	50	0	0	0	Figure 13-5: How do health fees contribute to a food crisis? (UNITED STATES OF AMERICA)	Both the figure and the accompanying text has been revised. The figure was simplified and there are now clearer references in the text to the figure.
386	82616	13	50	0	0	0	Figure 13-5. Would a phrase such as "building from" be more appropriate in place of "inspired by"? (Katharine Mach, IPCC WGII TSU)	We have changed the wording of this.