

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	35696	22	0	0	0	0	The Chapter is still in places very rough and it is thus hard to get a complete picture of it. Nevertheless, it seems to cover the most substantial parts of CC in Africa. I would have liked a more substantial review of development projects and impacts of these on adaptation, vulnerability and adaptive capacity in Africa. Africa receives a substantial amount of aid and a lot of this is climate related. I know that this is a draft, but a streamlining of language is necessary. Some sections are well written, others are poorly written. Sections 22.3.1. 23.3.1.2. are clumsy and with poor sentence constructions for example. (Jonas Nielsen, Copenhagen University)	Additional assessment of development projects and their impacts on adaptation have been added to the re-worked section on maladaptation
2	35906	22	0	0	0	0	On a whole, the Congo Basin region is very important in climate change debates. However, I feel that the Congo basin is less discussed in the introductory parts of this chapter which situate the socio-economic, cultural and institutional framework of climate change dynamics in Africa. This means that issues related to slash and burn agriculture, land use, land use change and deforestation within the Congo Basin area are narrowly captured in the rest of the chapter. For instance the phrase Congo Basin only appear for the first time in this chapter on page 79. So too are livelihoods sources like bush meat and Non Timber Forest Products. The phase slash and burn agriculture does not even appear anywhere in the text even though it is a principal cause of deforestation in Africa (De Wasseige et al, 2009; Dkamela, 2010). Citations: De Wasseige C., Devers D., de Merken P., Eba'a Atyi R., Nasi R and Mayaux P. (eds.) (2009) Les forêts du Bassin du Congo: état des forêts 2008. EU Publications Office, Brussels, Belgium. Dkamela, G.P. (2010) The context of REDD+ in Cameroon: Drivers, agents and institutions. Occasional paper 57. CIFOR, Bogor, Indonesia. (Precillia Jjang Tata épouse Ngome, Institute of Agricultural Research for Development)	Reference to Congo basin has been included in sections 22.2.2.2., 22.3.2.1.1., 22.3.3., 22.4.4.2., 22.4.5., 22.4.5.4., 22.4.5.6., 22.6.1.
3	36142	22	0	0	0	0	The satellite-derived land use/cover classification shows increased conversion of large portions of forests over the GHA to agriculture, particularly in Kenya, with land (acreage) under crops increasing from 6.55% in 1986 to almost 18% by the year 2000. Sensitivity experiments performed with regional climate model, Version 4 (RegCM4), indicate that expanding agriculture into forested areas led to a modest reduction in monthly rainfall totals and also may be contributing to notable shifts in moisture convergence zones and centers of rainfall maxim (Richard Anyah, University of Connecticut)	Thank you for the information. Please could you suggest where this be added and also provide a citation. Thank you
4	36606	22	0	0	0	0	In this chapter, using of information from AR5 of working group I is minimum as well as I did not see any reference from the model output of CMIP5 which does not incorporate the current developments of climate models. Too much irrelevant information in the chapter such as the details of MDGs. The repetition key sectors in the chapter such as health, agriculture and water. This chapter is also bulky. The acronym ENSO was written many times in the chapter. (Girmaw Bogale, United Nations Economic Commission for Africa)	Some direct reference to WGI chapters have been made. In other cases references to other chapters that are directly using findings from WGI are made. The section on MDGs has been reduced. In general attempts have been made to streamline the chapter. This has been addressed in the second order draft
5	36725	22	0	0	0	0	The chapter is yet complete, although it is already rather long. Many sections are still left blank. It is difficult to get a complete picture of the assessment report, making a detailed review difficult. The structure and the contents need substantial improvement for logical flow and clarity. There are many places where the text should be streamlined to provide concise and coherent information on the concerned issues. Some information provided in the current version of the report is not directly relevant to the theme and can be dropped to shorten the text. My general impression is that the authors attempt to include everything in the report. The result is that often, the important issues are not addressed sufficiently and the minor issues are only mentioned briefly because of the lack of information. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The chapter structure has been revised, several sections have been streamlined or merged to reduce redundancy. The sections that were left blank have been completed.
6	36760	22	0	0	0	0	At least two tables should be added in the chapter. One summarizes the observed trend of climate change, and the other one summarizes the projected climate changes for different regions of the continent. The current version of the chapter does not provide comprehensive information on the past and future trends in climate change. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	although these two tables have not been added as such tables are being developed in other chapters and summary products synthesizing material from several chapters, we have added a Figure 22-3: Summary of detection and attribution assessments of the relation of observed climate change over. This has been addressed in the text of the second order draft.
7	36761	22	0	0	0	0	In general, the assessment on the climate change and impacts is rather brief and the information provided is limited and often incomplete, particularly for the range of changes and the regional variations. In comparison, the assessment on adaptation is rather long. Without complete information about climate change and impact, the discussion on adaptation is often too general and lacks concrete goals. It would be preferable to shorten the assessment on adaptation by focusing on some key issues, and leave room for extending the assessment on climate change and impacts. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The assessment has been balanced by reducing the adaptation sections and expanding the discussion on climate change and impacts.
8	36768	22	0	0	0	0	In the whole chapter, the information about North Africa is almost completely missing. Given the fact this region is enduring severe water shortage and is highly sensitive to climate change, the absence is not a trivial matter. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	with observed regional climate changes (right) to provide some of this information. Moreover, Table 22-3. Projected changes in agro-climatic suitability for perennial crops in Africa under an A2 scenario has been added to the assessment. More discussion on North Africa has been added in the final draft.
9	37937	22	0	0	0	0	My overall impression from section 22.2.2.2 is that there is great uncertainty in projected precipitation trends (including trends in variability). However, I would not say that this is always reflected in the language of the rest of the chapter. For example there are many inferences to water resource vulnerability, but there is not enough reference back to the inherent uncertainty of the precip projections. (Caroline Bain, Met Office)	This section has been re written. We have tried to link the physical climate section with the rest of the chapter. We will continue to work on it in the next draft. This has been addressed in the second order draft.
10	38270	22	0	0	0	0	Looking at figures and tables made for the different chapters, there are similarities (e.g. magnitude of temperature and rainfall changes, impacts on ecosystems...) between chapters because they have they deliver similar information, but for different regions. (Guillaume Simioni, INRA)	There are some synthetic figures designs that appear in several chapters.

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11	38271	22	0	0	0	0	Having a similar layouts (i.e. same styles and legends, symbols, columns, colors, ...) across the chapters, would help the comparison between regions. Not sure it is important, especially if the readership is different from one chapter to another. It's just a suggestion. (Guillaume Simioni, INRA)	To be addressed in final draft
12	39080	22	0	0	0	0	WaterSA Paper – Mukheibir – July 2007.pdf (emailed to wg2-ar5-supportingmaterial@ipcc-wg2.gov) (Pierre Mukheibir, University of Technology Sydney)	Thank you for the suggested literature.
13	40004	22	0	0	0	0	The references need attention: some references are in alphabetical order, others in chronological order and others in a random order. There is inconsistent italicisation of et al.. For consistency, other Latin words used in an English sense (e.g. per, via) need to be in italics as well. There is inconsistent use of Century/century; 21st, 20th, 21st-Century (variations of superscripts/non-superscripts and capitalisations); there is an annoying mixture of American and British English. CO2 - subscript 2- and CO2 are used interchangeably (Peter Burt, University of Greenwich)	In the development of the SOD, an effort was made to reduce inconsistencies in references, spelling and formatting. Before publication of the final report, a review editor will make sure that all remaining inconsistencies are removed
14	42644	22	0	0	0	0	This chapter seems to have some material that might be repeated in other chapters. Authors should examine for repetition and ensure consistency of information. Also, this chapter would benefit from more information on the measurement of adaptation "results" and effectiveness of the programs and approaches that are described. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	We have tried to reduce repetition and will continue to work on it in the next draft.
15	42844	22	0	0	0	0	This chapter needs strong editing to avoid repetition and provide a balanced overview (amongst sectors, geographical coverage, and examples). To the extent possible, it should also be shortened. This will facilitate the next round of review. (Sofia Bettencourt, World Bank)	We have tried to improve the quality of the draft and reduce repetition and will continue to work on it in the next draft.
16	42845	22	0	0	0	0	The chapter relies heavily on the experience of UNDP-funded projects, such as SCCF, LDCFs, and the Africa Adaptation Programme. While this is understandable since this is the first comprehensive generation of adaptation projects to "mature", the chapter would benefit from drawing on the experience of other stakeholders such as NGOs (e.g. Red Cross, CONCERN), UN-Habitat/UNEP, WFP/UNICEF, or AfDB/World Bank (through the PPCRs and GFDRR-funded technical assistance). (Sofia Bettencourt, World Bank)	We have tried to do this. Please see our revised adaptation sections.
17	42846	22	0	0	0	0	Examples of transformational adaptation would also be useful, particularly since the process based, participatory adaptation advocated by the emerging evidence is rarely transformational. What would be examples of transformational policies? (e.g. shift in livelihoods away from dependence on climate-sensitive sectors?) (Sofia Bettencourt, World Bank)	Some discussion on transformational adaptation has been added in section 22.4.6. We will address this gap further in the next draft.
18	44224	22	0	0	0	0	number and quality of figures should be increased (Georg Kaser, University of Innsbruck)	The figures have been revised and new figures have been added.
19	44548	22	0	0	0	0	Section 22.2.1 and 22.2.2: Temperature and precipitation observations/projections – Please update to ensure consistency and cross-referencing with relevant WGI AR5 chapters and Annex I: Atlas of global and regional climate projections (Thomas Stocker, IPCC WGI TSU)	This section has been rewritten. And this has been addressed in the second order draft.
20	44549	22	0	0	0	0	Section 22.2.3: Temperature and precipitation extremes – This section begins with a reference to AR4, but no cross-referencing is currently provided to the SREX or the relevant WGI AR5 chapters. Ensure consistency with both SREX Ch3 and WGI AR5 (Thomas Stocker, IPCC WGI TSU)	This has been addressed in the second order draft.
21	44550	22	0	0	0	0	Planned FAQ on Africa - "How has the scientific evidence about climate trends and projections in Africa changed since AR4?". We have serious concern with the focus of this, as the assessment needed to answer such a question is primarily within WGI and the evidence past, present and future climate trends in the regions is covered in the WGI contribution to AR5 With the current focus of this FAQ, there is a serious risk here of cross-working group inconsistency and overlap that is best avoided. We thus suggest this FAQ to focus on the consequences for exposure, vulnerability, impacts, etc. rather than on the changes in climate themselves. (Thomas Stocker, IPCC WGI TSU)	The planned FAQ on climate trends and projections has been replaced by FAQs focussing on the implications of climate change for migration, violent conflict, and food security.
22	46776	22	0	0	0	0	The overall report on Africa is very disjointed. It needs to be completed, and the content of the currently unfinished sections, as well as the content of the latter sections in general, need to be better integrated into the Executive Summary. At present the report has an almost schizophrenic quality to it, with sections emphasizing a very technocratic approach based on the assumption that much of Africa is impoverished, incapable, in a downward spiral, and thus in need of external guidance. And yet other parts of the report identify not only what people lack, but what they have: ongoing adaptations, creativity to find solutions, whether it is livelihood diversification or new cropping patterns, and the possibility that Africans might not only be targets for assistance but active partners in climate-change adaptation. These two versions need to be reconciled, where this is possible, and where they cannot, the existing of contested perspectives needs to be highlighted. I also suggest that the report be written in a clearer, more direct style. (A. Peter Castro, Maxwell School, Syracuse University)	The draft has been revised and many sections have been re-written to improve the quality of the assessment.

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23	46911	22	0	0	0	0	General comments on Chapter 22: This chapter raises important concerns about the lack of water availability for hydroelectricity but does not go far enough in warning against the risks of hydrodependency that has played itself out in a number of African countries. For instance, new large hydro capacity is being planned for already hydrodependent countries and regions like Ethiopia and Southern Africa. Even with our existing climate, many of the hydro-dependent countries are already experiencing energy shortages when droughts strikes. For example, Kenya (which is 66% hydro-dependent) has regularly incurred significant costs of drought-induced energy shortages. In 2011, Kenya had a 90 MW shortfall in power due to drought, and had to replace lost hydropower with expensive emergency generators (see <a href="http://www.csmonitor.com/World/Africa/Africa-Monitor/2011/0726/East-Africa-drought-reaches-Kenya-s-electricity-grid">http://www.csmonitor.com/World/Africa/Africa-Monitor/2011/0726/East-Africa-drought-reaches-Kenya-s-electricity-grid</a> ). Another issue that the chapter does not address is the consequences of "hard infrastructure" like dams on carbon sequestration, which is most evident in the case of the proposed Grand Inga Complex on the Congo, Africa's biggest proposed hydropower project. Major rivers play a large role in helping tropical oceans absorb carbon. The vast flow of major river basins delivers phosphorus, iron and other nutrients far offshore, which support large coastal communities of carbon-fixing microorganisms. These organisms sequester carbon when they fall to the seafloor. Dams could change the delicate workings of this ecosystem service by holding back the river-borne and nutrient-rich sediment that feeds this cycle. A 2009 report tates that "plans to divert, store or otherwise intervene in Lower Congo River dynamics are truly alarming" and "ignore the river's significant influence on the equatorial Atlantic, which, in turn, is central to many climate change models." (Source: Showers, K. 2009. "Congo River's Grand Inga hydroelectricity scheme: linking environmental history, policy and impact. Water History, 2009 1:331-58.) (Katy Yan, International Rivers)	The role of hydropower and concerns about the potential impacts of climate change have been addressed in the sections on water resources and maladaptation of the SOD. Due to space constraints, we can unfortunately not go into more detail.
24	48656	22	0	0	0	0	Enormous improvement on the ZOD! Well done! (Dáithí Stone, University of Cape Town)	Thank you.
25	48657	22	0	0	0	0	The numbering is out of order and some sections may be out of order too. This made it difficult at times to figure out what might be missing thematically, or what might be redundant. Remaining embedded comments were sometimes hard to filter too. So some of my comments may have resulted from confusion due to these factors. (Dáithí Stone, University of Cape Town)	In the SOD, numbering has been corrected and author comments have been removed from the text.
26	51208	22	0	0	0	0	1) Overall -- In preparing the 2nd-order draft, the chapter team should prioritize making each section of the chapter a polished, comprehensive treatment of topics considered. From these sections, the chapter team is then encouraged to maximize the utility of its findings, ensuring that they are robust, compelling, and nuanced. Themes to consider informing in constructing findings include decisionmaking under uncertainty, risks of extreme events and disasters, avoided damages, and limits to adaptation. To these ends, the chapter team has effectively assembled a large body of material, which will provide a strong foundation for development of the 2nd-order draft. In an effort to inform this further chapter development, I provide some general and specific comments below. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
27	51209	22	0	0	0	0	2) Highlighting key findings -- In developing the 2nd-order draft, the chapter team should aim to identify and present key findings across the sections of the chapter, using calibrated uncertainty language to characterize its degree of certainty in these conclusions. In this way, a reader of the chapter will be able to understand how the literature reviews and syntheses in the chapter sections--the traceable accounts--support the conclusions of the chapter, especially those presented in the executive summary. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
28	51210	22	0	0	0	0	3) Usage conventions for calibrated uncertainty language -- Where used, calibrated uncertainty language, including summary terms for evidence and agreement, levels of confidence, and likelihood terms, should be italicized. In addition to incorporating these terms directly into sentences, the author team may continue to find it effective to present them parenthetically at the end of sentences or clauses. Casual usage of the reserved uncertainty terms should be avoided. (Katharine Mach, IPCC WGII TSU)	To be addressed in final draft
29	51211	22	0	0	0	0	4) Specificity of described observations and projections -- The chapter team should ensure specificity in describing observed and projected impacts, while still presenting information succinctly. I encourage the author team to continue practices such as: indicating the relevant time periods, geographic areas, etc. for observations; indicating relevant time frames, scenarios for climate change or socioeconomic development, geographic regions, or other assumptions for projections; and characterizing key driving factors where ranges of outcomes are presented. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
30	51212	22	0	0	0	0	5) Conditional constructions -- The chapter team should continue employing conditional constructions that explicitly separate a given physical change from its corresponding conditional impact. Such constructions can also allow the author team to separately characterize the degree of certainty for the physical change and conditional impact where appropriate. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
31	51213	22	0	0	0	0	6) Reduction of page length -- The biggest challenge ahead for the author team will be to move from a series of individual sections to a chapter that holds together cohesively in the entirety of its assessment. Reducing the length of the chapter will go hand-in-hand with this task. Some guiding principles for reducing page length perhaps could be articulated as follows: 1st, the key findings emerging from the chapter should principally guide decisions regarding which text to maintain, which to reduce, and which to delete. 2nd, overlap across section should be eliminated. 3rd, redundant sections can be combined. 4th, as an overall target, the chapter team should aim to reduce each section in length by 50%. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
32	51214	22	0	0	0	0	7) Summary terms for evidence and agreement -- The chapter team is encouraged to revisit statements for which a summary term is provided for evidence, but not for agreement--or vice versa, where a summary term is provided for agreement, but not for evidence. In such cases, the author team should consider characterizing its evaluation of both evidence and agreement. Alternatively, there may be statements for which the author team could present only a level of confidence, without summary terms for evidence and/or agreement. The TSU (especially Mike Mastrandrea) is available to discuss the framework for treatment of the uncertainties in this regard, if doing so would be helpful for the author team. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.

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33	51215	22	0	0	0	0	8) Coordination across the Working Group 2 contribution -- In developing the next draft of the chapter, the author team should consider treatment of topics not only in this chapter, but also across the report as a whole. For each topic, the chapter team should ensure that treatment here is reduced to the essence of what is relevant to the chapter, with cross-references made to other chapters as appropriate, also minimizing overlap in this way. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
34	51216	22	0	0	0	0	9) Harmonization with the Working Group 1 contribution to the AR5 -- At this stage of chapter drafting, the author team should carefully consider the working group 1 contribution. Wherever climate, climate change, climate variability, and extreme events are discussed, the chapter team should ensure that their treatment is harmonized with the assessment findings of working group 1. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
35	54474	22	0	0	0	0	GENERAL COMMENTS: I would like to thank the authors for their work on the FOD. When considering the expert review comments received on your chapter and the next round of revisions, I suggest several overall priorities. (1) Keep in mind that the preparation of the SOD is the time to ensure that each section of the chapter presents a comprehensive treatment of relevant literature, and that the Executive Summary presents findings that capture the key insights that arise from the chapter assessment. (2) This is also the time to focus on distilling the chapter text, not just fine-tuning wording but editing with a critical eye to improving quality by making discussions succinct and synthetic, while still being comprehensive. (3) Cross-chapter coordination is also important at this stage, as it should now be possible to identify topics that overlap with other chapters and to coordinate with other chapter teams to minimize that overlap. (4) Cross-Working Group coordination is important as well, and relevant chapter sections should cross-reference chapters from the other Working Groups, particularly in the case of statements about changes in mean or extreme climate conditions that are assessed in the contribution of Working Group I. (5) Continue to look for opportunities for the creation of figures that synthesize across results from the literature. (Michael Mastrandrea, IPCC WGII TSU)	In the revised version we have tried to address these issues.
36	54475	22	0	0	0	0	EXECUTIVE SUMMARY: The author team has made a good start on the Executive Summary, including clear attention to calibrated uncertainty language. For the SOD, line of sight references to supporting chapter sections where the traceable account appears should be added for each finding. Please also consider the usage of calibrated uncertainty language throughout the Executive Summary. Currently, assignments of confidence are used primarily, sometimes paired with levels of agreement, and sometimes with likelihood language also presented. Agreement/evidence terms on their own are used once as well. For those findings where confidence and agreement are presented together (or the one with agreement/evidence presented), I would recommend revision to present either levels of confidence on their own, or levels of confidence along with agreement and evidence assignments on which the confidence assignments are based (e.g., high confidence based on high agreement, medium evidence). Doing so would allow greater comparability across chapter findings. In addition, please check the usage of likelihood language in the Executive Summary and throughout the chapter. For likelihood assignments, the basis in quantitative evidence should be clear in the corresponding chapter text, to support the probabilistic expression of the author team's degree of certainty in a specific statement. If the information on which the statement is based is qualitative in nature, I recommend assigning a level of confidence instead. We in the TSU are available to discuss any of the technical details related to these issues if that would be of use. (Michael Mastrandrea, IPCC WGII TSU)	In the revised version we have tried to address these issues.
37	54476	22	0	0	0	0	TRACEABLE ACCOUNTS: In general, I would recommend the author team consider ways to more clearly identify support for assessment findings in the chapter text to link with the Executive Summary. In this context, I suggest providing some explanation of the calibrated uncertainty language used in the Executive Summary in the corresponding chapter section(s) where the traceable account appears for each finding. Currently, the calibrated language in the Executive Summary is not directly discussed in the corresponding sections. In particular, in situations where confidence is not high, it would be useful to understand why the author team has made this judgment (e.g., is there a lack of robust evidence?, are there multiple perspectives in the literature?). In situations where confidence is high, what is the evidence that forms the basis for these assignments? Succinct descriptions in the chapter text of this type will both highlight the basis for ES findings and help explain the author team's assessment of the literature. We in the TSU are available to discuss these issues as well if that would be of use. (Michael Mastrandrea, IPCC WGII TSU)	In the revised version we have tried to address these issues.
38	54831	22	0	0	0	0	The author team should synthesize discussions in this chapter and present summary of findings in each section. (Monalisa Chatterjee, IPCC WGII TSU)	In the revised version we have tried to address these issues.
39	54832	22	0	0	0	0	Cross reference and coordinate with other relevant chapters like 9, 14, 15, 16, 13 etc.,. (Monalisa Chatterjee, IPCC WGII TSU)	In the revised version we have tried to cross reference other chapters.
40	54833	22	0	0	0	0	The author team is encouraged to consolidate discussions and synthesize findings from sections in the chapter to avoid repetition. Moreover, the author team is requested to use strategies like tables, figures, maps to present synthesized findings where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	In the revised version we have tried to address these issues.
41	54848	22	0	0	0	0	Literature permitting, the chapter team is encouraged to add more cases to support their findings. Moreover, it will be useful if the enabling or deterring factors, drivers etc., are explicitly stated where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	In the revised version we have tried to address these issues.
42	54862	22	0	0	0	0	The author team should update the reference list and remove citation inconsistencies between in text citations and full citations given in the reference list. Please see supplementary document named WG2AR5-Chap22_Reference Checks.pdf at <a href="https://ipcc-wg2.gov/AR5/author/FOD/SuppMat">https://ipcc-wg2.gov/AR5/author/FOD/SuppMat</a> (Monalisa Chatterjee, IPCC WGII TSU)	The team has made an effort to resolve all citation inconsistencies by using a reference management software in the preparation of the SOD.
43	39298	22	1	0	1	0	Please allow me to congratulate the authors. The chapter is such a relief after having reviewed Chapter 11 (Human Health). (PAUL REITER, INSTITUT PASTEUR)	Thank you.

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44	44283	22	1	0	86	0	Overall, it is difficult to review this chapter, since a number of sections are still missing, or only provided in bulleted form. In addition, errors are still present in the text, including language errors, incorrect or incomplete sentences, and typos. I look forward to reviewing SOD. (Emma Archer van Garderen, CSIR)	In the revised version we have completed assessment for incomplete sections and tried to improve the quality of the assessment.
45	48006	22	1	1	86	39	Although the effects of potential broadening of the Hadley Cell is called out in Chapter 1, that connection does not seem to be addressed directly in this chapter on Africa. (Patricia Jacobberger-Jellison, NASA)	Generally, space constraints prohibit the elucidation of synoptic features responsible for observations or changes, however, in some places where appropriate this has been done in the second order draft.
46	48007	22	1	1	86	39	The chapter does not include any discussion of impacts/potential increases in wildlife poaching as a consequence of drought and food security stressors, nor the impact on tourism if poaching increases. The chapter also does not seem to contain any discussion of wildlife encroachment onto agricultural lands due to climate stressors that reduce their food and water supplies, nor the economic impact that such encroachment has. (Patricia Jacobberger-Jellison, NASA)	There is very little literature on this and it is covered in the terrestrial ecosystems chapter.
47	46395	22	1	42	0	0	There should be a section on observed sea level rise trends given the number of large coastal cities that can be affected by SLR. (Andrew Mather, eThekweni Municipality)	The issue of sea level rise has been discussed in 22.2.2.1., 22.3.2.3., 22.3.2.3.1., 22.3.6.3, 22.4.4.6. and 22.5.2.
48	36607	22	1	51	2	16	I am suggesting the impact and vulnerability of climate change has to be assessed based on sectors in order to avoid mixing. (Girmaw Bogale, United Nations Economic Commission for Africa)	Thanks for the comment but because of the nature of the literature assessed we have decided to treat vulnerability and impacts in the same section.
49	35905	22	2	4	2	9	correct numbering (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	The numbering was corrected
50	44282	22	2	8	2	8	Section 22.3.2.4 is rather confusing, in terms of structure and location. Surely this isn't a subsection of 22.3.3? How does this all fit together? I have also noted this in the section in text itself. (Emma Archer van Garderen, CSIR)	The structure of the chapter has been revised.
51	36608	22	2	26	2	42	The economics of adaptation includes all the cost benefit analysis of all the subsection of African Adaptation. The structure of the section will better if you put the economics of adaptation not as a sub-section of 22.2.4 rather as its own sub section of adaptation in Africa before sub-section 22.4.5 (Girmaw Bogale, United Nations Economic Commission for Africa)	The chapter structure has been revised and this topic is covered in the section 22.6.2. of this draft.
52	36129	22	3	0	86	0	Although this is the FOD, I think it is on track to be a well informed contribution. However, several sections still need extensive revisions/additions to make them consistent. In using case studies to make a case for climate change adaptation in Africa, the authors should not over-emphasize specific cases and localities, but there is need to also give a broader perspective over the whole Africa continent. It may also be necessary that when appraising progress in adaptation strategies and plans in Africa, at least one case should be highlighted over northern, southern, western and eastern Africa (i.e try to cover the full breadth and length of the continent, where possible). (Richard Anyah, University of Connecticut)	In the revised version we have tried to address these issues.
53	36726	22	3	3	0	0	The Executive Summary need to provide specific ranges of climate changes and impacts on various aspects of natural and human systems. As it is, the information is too general and does not provide much new knowledge on climate change and its impacts. The text in lines 51-54 is out of context. No one still needs to be told that Water is the primary medium through which ..... Many of the fragile terrestrial and aquatic ecosystems in Africa are ... water dependent'. Can anyone think of a place and ecosystem which is not water dependent? (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	In the revised version we have tried to address these issues. The text has been revised considerably.
54	36752	22	3	20	0	0	Executive Summary. Africa is a vast continent with significant variations in natural and socio-economic conditions. Climate changes and their impacts, as well as the capacity of adaptation vary substantially among regions and countries. It is important to provide at least some information on regional variations in various aspects in the Summary. The information in the current version is too general. A regional break-down information should be presented in the text and tables and figures. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	In the revised version we have tried to address these issues.
55	51217	22	3	20	0	0	Executive Summary -- In subsequent work on the executive summary, there are several aspects for the author team to consider further: 1st, for each key finding in bold text and wherever else relevant, the author team should provide line-of-sight references indicating the chapter sections in which a reader can find the traceable accounts--the author team's assessment of the state of knowledge--supporting the conclusions. 2nd, all calibrated uncertainty language assigned should be presented in italicized text. 3rd, where the author team presents a summary term for evidence OR agreement, the author team should consider presenting summary terms for BOTH evidence and agreement. There may also be cases where the author team finds it effective to present just the assigned level of confidence without explicit indication of assigned summary terms for evidence and agreement. (Katharine Mach, IPCC WGII TSU)	In the revised version we have tried to address these issues.
56	54834	22	3	20	0	0	Executive Summary - The author team should add chapter sections where these findings are discussed in detail. (Monalisa Chatterjee, IPCC WGII TSU)	In the revised version we have addressed this.
57	48658	22	3	20	37	35	A large number of statements in the first part of this chapter were along the lines "climate change could make the risk of X worse". In some paragraphs it seemed like "could" was in every sentence. According to the supporting text though the statement "climate change could make the risk of X better" would have been equally valid in many cases. In most of these cases I would guess that we don't know because simply no one has looked at it yet: you should make it clear that that is the situation then, as that is an extremely important message. (Dáithí Stone, University of Cape Town)	We have tried to incorporate this suggestion in the current draft and we will keep this in mind for the next draft.
58	35232	22	3	22	3	22	This is not true for precipitation; perhaps this sentence is meant to refer only to temperature? (David Rowell, Met Office Hadley Centre)	The section and key finding has been rewritten.
59	49827	22	3	22	3	22	"observed trends are consistent with projection". This does not prove causation (Vincent Gray, Climate Consultant)	The section and key finding has been rewritten.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
60	54477	22	3	22	3	31	The statement in lines 29 through 31 (last sentence of the paragraph) about the lack of regional data for Africa currently reads as somewhat conflicting with other statements in this paragraph (e.g., second bold sentence and the sentence in lines 28 and 29 stating that there is strong evidence that both means and extremes in temperature and precipitation distributions are changing). Likewise, the bold statement that observed trends in precipitation show less consistency seems at odds with the nonbold sentence in lines 28 and 29 as well. The nonbold sentence in lines 28 and 29 could be interpreted as a global statement, but this is not clear from the wording. It would be useful here to state more clearly the state of knowledge regarding observed climate trends in Africa (means and extremes). In addition, it would be very useful to be more specific regarding what is meant by "these trends are expected to continue" when the description of projected changes is revised. Once a time horizon is specified, projections for different emissions scenarios and across multiple climate models/downscaled projections should be included. (Michael Mastrandrea, IPCC WGII TSU)	The issue of lack of observations has been removed from the ES and is taken up again in the Research Gaps section 22.6.
61	54481	22	3	22	3	31	Regarding the traceable account for this finding, not all of the statements made in the Executive Summary are supported by what appear to be the relevant chapter sections. For example, changes in extreme cold/hot days and nights are not discussed directly. Please ensure that the findings in the Executive Summary can clearly be linked to the author team's assessment in the chapter text. (Michael Mastrandrea, IPCC WGII TSU)	This has been addressed in the SOD.
62	36130	22	3	22	5	45	The best way to appraise precipitation and temperature trends in Africa based on AR4 report and additional research thereafter ( in the Executive Summary) would be to look at the four parts of the continent distinctively ( west Africa, east and horn of africa, southern africa, and northern africa. The periodic report of the State of the global climate by NOAA published in BAMS every year's "Annual State of the Climate" would provide a good source for sumarizing the climate trends in different parts of Africa based on multi-platform of observations. (Richard Anyah, University of Connecticut)	This approach has been adopted in the SOD.
63	37938	22	3	23	0	0	...medium confidence that extreme cold days...' - what is the definition of extreme in this context? (Caroline Bain, Met Office)	In the SOD these definitions are tracable to the SREX.
64	37939	22	3	27	0	0	Since AR4, climate science methodologies have improved to discern nuances with annual distributions' - what does this mean? The methodologies are not mentioned anywhere in the report. If you mean that we have gained greater understanding of annual variability and seasonal trends it would be better to rephrase as such. (Caroline Bain, Met Office)	This statement has been removed as is it very vague.
65	51218	22	3	29	3	29	Given the description here of evidence, the author team should consider presenting summary terms for evidence (and agreement). (Katharine Mach, IPCC WGII TSU)	In the SOD we have rewritten the ES and removed the word evidence.
66	36131	22	3	29	3	31	The statement beginning with, " In the context of africa....." is not very accurate. Also there should be mention of the WMO's World Climate Research Program(WCRP) on Coordinated Regional Downscaling Experiments (CORDEX) that has generated regional climate data, with special focus on Africa, for regional impacts, vulnerability and adaptation studies. A few publications already available on CORDEX (e.g Giorgi et al., 2012; ) (Richard Anyah, University of Connecticut)	We have rewritten the ES in the SOD. Cordex is mentioned in section 22.2.
67	45374	22	3	33	0	0	Changes in climate can shift the location and extent of biomes in Africa (High agreement, medium evidence).' This does not mean anything. What kind of changes? +0,15 degree or +6? Where in Africa'? What kind of biomes? There is plenty of evidence of pre-human induced climate change that causes location shifts of biomes. It is self evident that biomes migrate when a climate changes - if there are no natural (or human) barriers in the way. (Willem Pieter Pauw, German Development Institute (DIE))	This key finding has been deleted.
68	48167	22	3	33	3	37	For the purpose of the executive summary it should be disentangled which part of the 5 to 50% would be driven by climate. If socio-economic drivers are the main contributors the numbers would be useless in a climate assessment report. (Jochen Harnisch, KfW)	This key finding has been deleted.
69	54482	22	3	33	3	37	Regarding the traceable account for this finding, it is not clear where the 5-50% of land projection comes from. Section 22.2.3.1 provides a similar statement citing 5-10% of land in Africa as a whole, with a 10-50% range for West Africa. Please check these numbers. (Michael Mastrandrea, IPCC WGII TSU)	This key finding has been deleted.
70	46148	22	3	34	0	0	A range of 5 - 50% seems far too broad. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This key finding has been deleted.
71	51219	22	3	34	3	34	As possible, it would be preferable to indicate specifically the relevant climate/socio-economic scenarios here. (Katharine Mach, IPCC WGII TSU)	This key finding has been deleted.
72	40005	22	3	36	3	36	change 'like' to 'such as' (Peter Burt, University of Greenwich)	This key finding has been deleted.
73	45373	22	3	39	0	41	I would say they have the potential to threaten coastlines, AND HAVE PARTICULAR IMPACT in coastal towns (Willem Pieter Pauw, German Development Institute (DIE))	The key finding has been revised.
74	40006	22	3	39	3	39	change 'like' to 'such as' (Peter Burt, University of Greenwich)	OK
75	54483	22	3	39	3	41	It would be useful to add further context to this finding, in the form of additional nonbold sentences that perhaps indicate specific regional differences in risk (e.g., based on differential vulnerability and exposure), relevant non-climatic drivers, etc., to the extent possible based on the available information. Gaps in knowledge could also be noted. (Michael Mastrandrea, IPCC WGII TSU)	A sentence was added but not trying to indicate regional differences
76	45375	22	3	43	0	44	There is 'medium confidence' that there is 'more evidence' that the costs....What does this mean? Very unclear (Willem Pieter Pauw, German Development Institute (DIE))	More evidence doesnt mean more confidence
77	51220	22	3	43	3	43	It would be preferable to indicate more specifically which impacts are meant here by "these impacts." (Katharine Mach, IPCC WGII TSU)	There has been a change
78	54484	22	3	43	3	47	This paragraph seems to group multiple findings (at least the last sentence seems separate from the previous two), and it would be useful to present these separately, again with further context in the form of nonbold sentences that explain the knowledge base in more detail. (Michael Mastrandrea, IPCC WGII TSU)	This key finding has been revised.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
79	45376	22	3	49	0	0	vulnerability of Africa's water resources' - how can water resources be vulnerable? I assume the authors mean the vulnerability of the availability of water resources, the vulnerability of water resource users, or the pressure on Africa water resources? (Willem Pieter Pauw, German Development Institute (DIE))	The key finding has been revised.
80	51221	22	3	49	3	49	"very likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The key finding has been revised.
81	37940	22	3	49	3	51	You say we have 'very high confidence' that water resources will become more vulnerable due to climate change but my impression from section 22.3.2.2, 22.3.2.2.1 and 22.3.2.2.3 is that there is great uncertainty surrounding water projections. Therefore stating that vulnerability will increase due to climate change specifically cannot be said with very high confidence - if rainfall increases, vulnerability could decrease. Vulnerability might increase anyway due to population increases, but this is not specifically 'due to climate change'. (Caroline Bain, Met Office)	The key finding has been revised.
82	54485	22	3	49	3	51	It is not clear whether "very likely" is used here as formal calibrated language with a probabilistic interpretation. If it is, its basis should be presented in the corresponding chapter text where the traceable account appears. (Michael Mastrandrea, IPCC WGII TSU)	The key finding has been revised.
83	46912	22	3	49	4	4	This section addresses the importance of climate change adaptation strategies taking into account how climate change will be "superimposed onto already water stressed catchments with complex land uses, water engineered systems, and a strong socio-political and economic historical footprint." This sentence is vague and skirts the issue that effective climate change adaptation will need to fundamentally address the problems of these existing issues like "water engineered systems." Instead, an integrated approach to water management will require governments and adaptation practitioners to rethink solutions and prioritize how best to deliver services to the poorest communities in Africa. These will necessarily need to favor small scale and low-tech solutions – such as rainwater harvesting, treadle pumps, improved soil and crop management methods, and water storage tanks – which are likely to be more affordable, flexible, geographically widely dispersed, community-driven, and climate resilient than large-scale "hard infrastructure" projects. (Katy Yan, International Rivers)	The key finding has been revised.
84	54486	22	3	54	4	4	Please consider the wording here to avoid potential policy prescriptiveness. (Michael Mastrandrea, IPCC WGII TSU)	ok
85	51222	22	4	1	4	1	The author team should revisit the wording of this line to ensure it would not be potentially interpreted as prescriptive. (Katharine Mach, IPCC WGII TSU)	ok
86	48169	22	4	1	5	45	It seems warranted to add one paragraph to the executive summary giving guidance on the role of no-/low-regrets measures in this region. The underlying chapter text should also be strengthened. (Jochen Harnisch, KfW)	In the revised version we have tried to address this.
87	48170	22	4	1	5	45	The limited robustness of regional climate projections e.g. for rainfall, river run-off, droughts and floods should also be mentioned in the executive summary as a major obstacle to implementing dedicated adaptation projects on a larger scale in this region. (Jochen Harnisch, KfW)	In the revised version we have tried to address this and we will address this again in the next draft.
88	42805	22	4	6	4	8	State level of confidence (Sofia Bettencourt, World Bank)	To be addressed in final draft
89	54487	22	4	6	4	8	Again, it would be preferable to provide further details regarding this finding in additional nonbold sentences. Are there specific MDGs where progress is not being made? Are there regional differences? Can more be said about how this contributes to vulnerability to climate change? (Michael Mastrandrea, IPCC WGII TSU)	In the revised version we have tried to address this.
90	44890	22	4	10	0	0	Progress is being achieved on managing risks to households' food production and income from current climate variability but these (Celine Verissimo, University College London)	The key finding has been revised.
91	52276	22	4	10	0	0	This assertion with regards to progress achieves on risks management to food production should be more targeted and better illustrated... I'm not sure that in Sahel area, this progress existed (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This section has been substantially revised. Also please see chapter 7
92	54488	22	4	10	4	11	It is not clear whether "likely" is used here as formal calibrated language with a probabilistic interpretation. If it is, its basis should be presented in the corresponding chapter text where the traceable account appears. (Michael Mastrandrea, IPCC WGII TSU)	we have been very careful with the use of these terms in the final draft
93	51223	22	4	11	4	31	"likely" on lines 11, 14, 22, 24, and 31 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	we have been very careful with the use of these terms in the final draft
94	44891	22	4	17	0	19	anticipating and responding to climate risks, and increased flexibility and diversity in livelihoods options, which serve to strengthen coping strategies in family-based agriculture and businesses for the near-term risks from climate variability, provide potential pathways for adaptation to climate change. (Celine Verissimo, University College London)	It is not clear what is being highlighted here.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
95	42807	22	4	20	0	0	Suggest adding a paragraph with the conclusion that in Africa (more perhaps than any other continent) most disasters are climate-related, and therefore there is an even more urgent need to link CCA and DRR approaches and institutions (- at the community level, for example, the two are virtually indistinguishable. This, unfortunately, is not happening due to historical reasons and international allegiances to different processes (e.g. Hyogo and UNFCCC) which traditionally support different agencies. This further splits already fragile institutional capacities. (Sofia Bettencourt, World Bank)	The final draft refers to the findings of the SREX report related to Africa and DRR has been addressed throughout the chapter, but particularly in the section on adaptation. There are now various statements in the ES related to extreme events and in particular the following: "While a wide range of adaptation approaches and decision tools are being tested and implemented at different scales across Africa, implementation is not yet at a scale that would address the complex vulnerabilities and needs identified (high confidence). Disaster risk reduction, social protection, technological and infrastructural adaptation, ecosystem-based approaches and livelihood diversification are reducing vulnerability, but largely in isolated initiatives. [22.4.5]." Space constraints do not allow for going into further detail
96	42808	22	4	20	0	0	As a related comment, the Executive Summary should mention impacts on infrastructure and housing (including social infrastructure such as schools and health centers) for climate hazards such as floods, cyclones and storm surges. These sectors have been consistently found to be amongst the most affected (in economic terms) in recent Post Disaster Risk Assessments in Sub-Saharan Africa (see gfdrr.org for PDNA reports). Specific examples include transport infrastructure damage in Madagascar, Mozambique and Namibia (due to floods and cyclones), housing and social infrastructure damage in Mozambique and Madagascar, and urban infrastructure damage in Senegal, Burkina Faso, and other countries prone to flash floods. (Sofia Bettencourt, World Bank)	See related annotation comment above. Moreover, section 22.4.5.7 in the final draft of the chapter contains additional information on infrastructural issues.
97	51224	22	4	21	4	21	The author team may wish to provide some further specification for these statements. 1st, is it possible to further specify what is meant by "severely compromised" on line 22? 2nd, can the relevant climate/socio-economic scenarios for the statements be specified further? 3rd, is it possible to indicate relevant time frames for a more specific manifestation of the 1st statement? (Katharine Mach, IPCC WGII TSU)	Text has been changed considerably.
98	40007	22	4	24	4	24	Please quantify 'significant' (Peter Burt, University of Greenwich)	ok
99	54489	22	4	31	4	36	Please check the traceable account for this finding. For example, the discussion of leishmaniasis in section 22.3.3.2.2 presents one paper that finds a positive relationship with heavy rainfall in Tunisia, but connections to other factors such as temperature and processes such as dam building are also presented. Please ensure that the findings in the Executive Summary reflect a synthesis of the available information. (Michael Mastrandrea, IPCC WGII TSU)	Es statement has been revised
100	48168	22	4	31	4	39	It would be great if this very general statement could be connected to some kind of robust quantitative information. It currently reads worrying. If it is a secondary or tertiary effect on health in Africa the impacts of climate change should be put verbally into perspective. (Jochen Harnisch, KfW)	Es statement has been revised
101	37941	22	4	32	0	0	Use of the phrase 'health outcomes' - is this standard language? I'm assuming this is 'health issues' or 'health problems'. I might just be unfamiliar with the terminology 'outcomes', seems like a strange phrase to use! (Caroline Bain, Met Office)	Es statement has been revised
102	46149	22	4	32	0	0	In response to "medium confidence" in climate change increasing wider health problems. Does your knowledge and experience support a higher confidence on the likely increase in a wider range of health outcomes related to food safety related to increased temperature? For example, food-borne infections from fish as a result of increasing water temperatures. Food safety was not addressed in this paragraph, should it be? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	with limited literature on such topics it is difficult to include them in key findings of the executive summary
103	39299	22	4	33	0	0	In my opinion, in many ways the issue of Highland Malaria in Africa is a red herring; less than 2% of the continent lies above 2,000m and much of this is too arid to cultivate. In addition, malaria has been endemic throughout the areas concerned for more than a century (despite claims to the contrary by Mr Al Gore!). There is no doubt that temperature plays a role in malaria transmission but in the regions in question (and also in other highland areas, such as in New Guinea) is mainly due to deforestation, which provides ideal habitat for Anopheles gambiae and An. farauti, and settlement of large populations of people from lowlands. A good review of the background to this is in Reiter, P. Malaria Journal 2008, 7(Suppl 1):S3 (11 December 2008) (PAUL REITER, INSTITUT PASTEUR)	thank you, we think there is growing evidence on the connection between climate change and malaria in african highlands. Chapter 11 also covers this topic.
104	37942	22	4	38	0	0	What evidence is there to suggest that climate change might impact access to health care and education? (Caroline Bain, Met Office)	Es statement has been revised
105	52277	22	4	47	0	0	Instead of saying "In all regions of the continent, the initial components of national governance systems for adaptation and responding to climate change are being developed (high confidence, medium agreement).", is it possible to say: "In all regions of the continent, the initial components of national governance systems for adaptation and responding to climate change are being developed and progress is achieving (high confidence, medium agreement)." (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The key finding has been revised.
106	52278	22	4	48	0	0	Instead of saying "Some progress has been made on national and sub-national adaptation policies and strategies to supplement preliminary plans such as [...]" is it possible to say: "Some progress has been made on national and sub-national adaptation policies and strategies to implement preliminary plans such as [...]" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Es statement has been revised
107	37943	22	4	50	0	0	What are NAPAs? Could you replace acronym with meaning please? (Caroline Bain, Met Office)	Change has been made.
108	40008	22	5	1	5	1	change 'on' to 'to' (Peter Burt, University of Greenwich)	The key finding has been revised.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
109	44892	22	5	2	0	0	governance systems that can deal with complex socio-ecological conditions and change by acknowledging and learning from self-organised practices that are proven to be resilient and adaptive. (Celine Verissimo, University College London)	The key finding has been revised.
110	52279	22	5	4	0	0	Instead of saying "While a wide range of adaptation options, approaches and decision tools are being tested and implemented across Africa, additional efforts at scale are needed to address the complex identified vulnerabilities and needs (very high confidence, high agreement)." is it possible to say: "While a wide range of adaptation options, approaches and decision tools are being tested and implemented across Africa, additional efforts at local and national are needed to address the complex identified vulnerabilities and needs (very high confidence, high agreement)." (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The key finding has been revised.
111	51225	22	5	5	5	5	The author team may wish to revisit the wording on this line to avoid potential interpretations of being prescriptive. (Katharine Mach, IPCC WGII TSU)	The key finding has been revised.
112	52280	22	5	7	0	0	Instead of saying "Adaptation options and approaches used at different levels and scales in Africa include disaster risk reduction, early warning systems and disaster preparedness; [...]", I suggest to say "Adaptation options and approaches used at different levels and scales in Africa include disaster risk reduction and management, early warning systems and disaster preparedness; [...]" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The key finding has been revised.
113	36132	22	5	13	5	15	Another key challenge that is worth mentioning in this report is 'lack of proper channels and coordinated producers and/or gatekeepers of credible climate products and information necessary for comprehensive local/regional climate change impacts, vulnerability and adaptation assessments. The regional climate research and application centers (ACMAD, ICPAC, and NHMSs, etc) currently still have limited capacity and infrastructure to act as strong one-stop shops for climate change information. This leaves room for use of non-verifiable climate information by many stakeholders in climate change adaptation practice. (Richard Anyah, University of Connecticut)	The key finding has been revised.
114	46150	22	5	24	0	25	Core to all approaches to climate change adaption. There should be a lot of focus on practicality in overarching policy changes - lots of emphasis should be placed on cultural, ethical, and Indigenous rights in local areas. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Yes, indigenous and cultural rights and aspects have been addressed throughout the chapter, particularly in the adaptation section of the final draft, and have been further highlighted in the section on limits to adaptation.
115	46151	22	5	29	0	31	Are they giving too little credit to local, indigenous, and traditional knowledge on how to react to climate variability? Are the solutions there but just not implemented on a broad enough basis? There needs to be action to address root causes but will it really "undermine the ability of people to cope and adapt." I worry that the language thus far in the document pegs Africans as victims and not agents of change in combating climate change. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The key finding has been revised.
116	42938	22	5	30	0	0	Insert 'demographic' after 'political'; see p28 I43; p12 I49 (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	the text has been revised
117	36727	22	5	37	5	45	...to absorb large amount of funds allocated for adaptation....'. Need to provide a rough number here to show the extent of the 'large'. This is because the general impression is that the adaptation in Africa is constrained by short of funding. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	the text has been revised
118	41450	22	5	37	5	45	the statement on mismanagement of funds has not yet been underpinned by any evidence, see the comment on chapter 22, page 83. It is therefore inadequate to include this in the current manner in the executive summary, if no further evidence is provided (Sven Harmeling, Germanwatch)	the text has been revised
119	42806	22	5	37	5	45	Fund mismanagement has also to do with very weak institutional set-ups. Governance structures tend to be highly sectoral, with climate change (and their respective funds) considered the "property" of Ministries of Environment. These tend to be newer, weaker Ministries without the leverage or field presence to influence the actions of much older, more established institutions that are critical to adaptation (e.g. Ministries of Agriculture, Public Works, Health). Thus, the institutional set-up is not established to allow for financing of inter-sectoral interventions and the participatory processes that are critical to local adaptation efforts. In addition, funds are misused because, both from the donors as well as Government side, there is much mixing of "adaptation" with normal development aid: donors are relabeling normal ODA as climate resilient, and Governments claim that much of it is incremental. Thus, from both sides of the debate, the incentives are to misallocate CC funds. (Sofia Bettencourt, World Bank)	the text has been revised.
120	35907	22	5	48	6	16	After presenting the structures of the region, the major ecological zones should be discussed together with their resources, number of countries embodied, sensitivity to climatic changes and the type of stresses already affecting these regions. By so doing, they will be adequately captured in subsequent sections. (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	This is a good suggestion and will be considered for final draft. Might however be difficult to realise due to the lack of space available
121	35908	22	6	0	0	0	Note sure but feel that forest policy influencing bodies like the Central Africa Commission on Forestry need to be considered here. (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	Feel that this comment rather refers to the forest section than to structure of the regions / AR4 conclusions. To be addressed in final draft.
122	54835	22	6	1	0	0	Section 22.1.2. The author team may wish to add some description of geographical/ecological zones in the the African continent. (Monalisa Chatterjee, IPCC WGII TSU)	This is a good suggestion and will be considered for final draft. Might however be difficult to realise due to the lack of space available

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
123	46152	22	6	3	0	46	I think this is very important to any further discussion, discussing the structure of Africa as the AU thinks about the structure of Africa. "In this report, the main concern is relative to potential impacts of climate change and vulnerability for 6 sectors considered (water resources, food security, natural resources and biodiversity management, health, human settlements and infrastructure, desertification), adaptation strategies being considered for each of these sectors." I think this should also include the impact of climate change on culture and traditional and Indigenous practices. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Structure of the regions has been arranged according to AU's subdivision into eight Regional Economic Communities. Impact of climate change on culture and traditional indigenous practices is indeed a very important aspect and is dealt with extensively in Chapter 12. Further Africa related aspects on the impacts on climate change on indigenous people are now addressed in the adaptation section
124	40009	22	6	4	6	4	delete 'continent' (Peter Burt, University of Greenwich)	Yes, quite right
125	40010	22	6	5	6	5	change text 'of which 33 are belonging to' with 'and 33 belong to' (Peter Burt, University of Greenwich)	Yes, quite right
126	52281	22	6	28	0	0	Instead of "[...] and some have temporarily frozen diplomatic relations (e.g. Costa Rica, Ghana) [...]", I suggest to delete Costa Rica from this sentence "and some have temporarily frozen diplomatic relations (e.g. Ghana)". It's better to illustrate this purpose by using Africans countries... (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Yes, quite right
127	54836	22	6	32	0	0	Section 22.1.3. To reduce length and synthesize, the author team may wish to add a table listing key findings from previous assessments including SREX. (Monalisa Chatterjee, IPCC WGII TSU)	This has been added in the final draft
128	40011	22	6	37	6	37	a few number' is bad English. Just say 'few', but quantify (Peter Burt, University of Greenwich)	The words "number of" were deleted.
129	44284	22	6	40	6	40	This line comprises one example of a paragraph where, as illustration of my point above, the writing is rather confusing in places. (Emma Archer van Garderen, CSIR)	Some revisions have been made to improve clarity
130	52282	22	6	52	0	0	Instead of saying "It first considered the different sources of the actual vulnerability of the continent, encompassing socio economic causes (demographic growth, governance, conflicts, etc.).", I suggest to say "It first considered the different sources of the actual vulnerability of the continent, encompassing socio economic driving forces (demographic growth, governance, conflicts, etc.)." (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Some revisions have been made to improve clarity
131	40012	22	7	3	7	3	to make sense of the text , required after 'analyzed' (Peter Burt, University of Greenwich)	A comma was added after 'analyzed'.
132	37944	22	7	3	7	6	I didn't understand the meaning of the sentence - did the second case study show that Africa is trying to face climate variability currently? And that this might be insufficient for the future? I think this is the meaning, it might help to rewrite the sentence: 'Two case studies were analyzed on food security and traditional knowledge: the first emphasized that climate change could affect the three main components of food security, while the second case study showed that although Africans were (sometimes) able to manage the impacts of current climate variability, their knowledge may be insufficient for managing future climate change impacts.' (Caroline Bain, Met Office)	Some revisions have been made to improve clarity
133	48573	22	7	4	7	5	I don't understand this second case study. (Dáithí Stone, University of Cape Town)	Some revisions have been made to improve clarity
134	46153	22	7	13	0	0	Unclear on what SREX will contain? Will it provide more of a transition? Don't understand why an introduction of renewable energy is before Observed Climate Trends and Future Projections (Page 8: Line 22) (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Has been addressed in the final draft
135	42809	22	7	18	0	0	It is unclear why this section is inserted here - it doesn't seem to fit in between the discussion of past assessments and trends. If the intention is to highlight the importance of renewable energy for mitigation, it should be inserted on the mitigation section at the end. If the intention is to highlight adaptation options in the energy sector, then hydro-power (with a considerably higher potential for Africa's energy needs) should also be discussed. Mostly, it seems to be make a plea for renewable energy as a basis for sustainable development, but since there are many other factors that could trigger sustainable development in Africa, it is oddly located and worded. Suggest removing it or adding it to other, logically placed sections. (Sofia Bettencourt, World Bank)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
136	51226	22	7	18	0	0	Section 22.1.3.3. Further development of this section should provide clearer links to the special report on renewables, given the focus of 22.1.3. The author team should also aim to reduce the length of section by more than 50%. (Katharine Mach, IPCC WGII TSU)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
137	54837	22	7	18	0	0	Section 22.1.3.3. It is unclear how this section is fitting here in the chapter, the author team may wish to integrate with discussions in section 22.6. (Monalisa Chatterjee, IPCC WGII TSU)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
138	36728	22	7	18	8	19	The section 22.1.3.3 provides general information about the situation of renewable energy in Africa. But the section 22.1.3 is 'Major Conclusions from Previous Assessments'. The information in 22.1.3.3 is not directly relevant to the theme and should be deleted. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
139	44285	22	7	18	8	20	Is this a required section? Does it comprise conclusions from previous assessments? I'm assuming yes, since it is a subsection of 22.1.3 ? The writing in this section is odd in places, the second paragraph, in particular, doesn't flow well, and is hard to follow. (Emma Archer van Garderen, CSIR)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
140	40013	22	7	20	7	20	replace 'ongoing researches' with 'studies' (Peter Burt, University of Greenwich)	The suggested change was made.
141	37945	22	7	23	0	0	Should 'attendant' be 'intended'? (Caroline Bain, Met Office)	The section has been rewritten.
142	40014	22	7	24	7	24	change text 'Also, ...as a viable' with 'Wind energy has been identified as a viable..' (Peter Burt, University of Greenwich)	The suggested change was made.
143	40015	22	7	26	7	26	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	The section has been rewritten.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
144	46777	22	7	27	0	0	What exactly is the meaning of the claim that 'industrial infrastructure needs strengthening' to effectively use renewable resources? How? Why? In addition, the lack of reference here to cost-efficiency is surprising. Wouldn't the 'aggressive lobbying' that is mentioned later in section be done more convincingly if it can be shown that alternate energy sources are cost effective? (A. Peter Castro, Maxwell School, Syracuse University)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
145	51227	22	7	27	7	27	The author team may wish to revisit the phrasing of this statement to avoid potential interpretations of being prescriptive. (Katharine Mach, IPCC WGII TSU)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
146	40016	22	7	30	7	30	cumbersome units. Check formatting (Peter Burt, University of Greenwich)	Done
147	36133	22	7	30	7	41	Wen giving specific efforts by individual countries in increasing use of renewable energy sources ( solar) it should also be cast on the larger picture across the whole continent. It is important to also mention the planned solar farm in Morocco (North Africa) and whether it is likely to help reduce the cost of energy in that population-scarce region. (Richard Anyah, University of Connecticut)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
148	40017	22	7	31	7	31	space required between number and units (Peter Burt, University of Greenwich)	Done
149	40018	22	7	34	7	34	using 'include' implies information is missing. (Peter Burt, University of Greenwich)	Rephrased
150	46154	22	7	37	0	38	Why is carbon emission reduction not a primary reason for introducing innovations in solar energy? If true, then what is the motive for introducing renewable energy? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	...mainly due to the fact that there is insufficiency of electricity to meet up with domestic and industrial needs, however, such environmental reasons are seen as increasingly important. However, this section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
151	40019	22	7	39	7	39	insert 'the' before 'current' (Peter Burt, University of Greenwich)	The suggested change was made.
152	40020	22	7	45	7	45	inconsistent style of units (Peter Burt, University of Greenwich)	The section has been rewritten.
153	40021	22	8	1	8	1	change 'like' to 'such as' (Peter Burt, University of Greenwich)	The suggested change was made.
154	36134	22	8	1	8	11	The whole paragraph should be re-written to make the context clear (Richard Anyah, University of Connecticut)	This section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
155	40022	22	8	2	8	2	change 'populate' to 'population' (Peter Burt, University of Greenwich)	Done
156	48574	22	8	10	8	11	I count two or four barriers listed here, depending on how the list is parsed, but I don't see a way of counting three. (Dáithí Stone, University of Cape Town)	1. Policy/legal barriers 2. Technical barriers 3. Financial barriers. However, this section was substantially shortened in the SOD and integrated in section 22.6.1 Integrated Adaptation / Mitigation Approaches
157	46281	22	8	13	0	0	I think this point about small-scale and household renewable energy projects is important. Small-scale renewable energy, including solar lamps, etc. can help improve school performance and increase money-generating labor such as sewing, crafts, etc. They can also create opportunities, especially for women, to improve their incomes through the sale of lamps, etc. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Done
158	37946	22	8	14	8	15	Aggressive lobbying for renewables.... Is required' - this is an opinion and should either be toned down or rephrased to reflect that it is the opinion/ or was a conclusion from Legros et al., 2009 (Caroline Bain, Met Office)	Rephrased
159	48575	22	8	22	0	0	I think I wrote some of this section, or at least contributed to some of it. I will avoid commenting on what I think I wrote or contributed to writing, here and in any other sections. (Dáithí Stone, University of Cape Town)	The section has been rewritten.
160	51228	22	8	22	0	0	Section 22.2. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections. (Katharine Mach, IPCC WGII TSU)	Through an addition of a North African discussion this section has not reduced in length
161	54838	22	8	22	0	0	The chapter team may wish to add a table with key observed and projected temperature and precipitation trends for Africa in the literature. (Monalisa Chatterjee, IPCC WGII TSU)	Space constraints prohibit this, however the information is in the text
162	48576	22	8	25	0	0	"high levels of uncertainty" needs some context. It could mean that that we don't know anything, or it could mean that compared to the uncertainty concerning these quantities for other land areas of the world the uncertainty for Africa is relatively high. (Dáithí Stone, University of Cape Town)	This paragraph has been subsumed into the text of 22.2.1 and 22.2.2 where terms relating to uncertainty have been tightened up.
163	48577	22	8	28	8	29	I think you mean "for interpreting the climate response to emissions scenarios". They would be a needlessly expensive way of devising a climate scenario. (Dáithí Stone, University of Cape Town)	This has been addressed in the text of the second order draft
164	48578	22	8	32	0	0	"at the grid-size" to "near the grid-size" (Dáithí Stone, University of Cape Town)	Sentence removed
165	35233	22	8	33	8	33	I suggest adding convection. (David Rowell, Met Office Hadley Centre)	Alluded to in the text of the SOD
166	44286	22	8	35	8	36	I would recommend inserting a small paragraph here, or hereabouts, describing briefly what the subsections below cover. (Emma Archer van Garderen, CSIR)	Space constraints have prohibited this, however, the section titles may be helpful?
167	51229	22	8	37	0	0	Section 22.2.1. In further development of this section, the author team should consider and cross-reference findings of the working group 1 contribution to the 5th assessment report, where appropriate. (Katharine Mach, IPCC WGII TSU)	This has been addressed in the second order draft
168	40023	22	8	43	8	43	superscript required (Peter Burt, University of Greenwich)	The section has been rewritten.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
169	46155	22	9	0	0	0	"For Africa, the start of the wet season is getting progressively later each year (Kniveton et al., 2009)." I think it's important to include in this section how problematic that is for small-scale farmers. Because they will no longer be able to plan when to plant or harvest, it disrupts (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This statement has been removed as it is too broad
170	42160	22	9	5	0	0	Elsewhere, the Report says that increases in minimum temperatures is greater than maximum temperatures, for example, page 3, Executive Summary, lines 22-23 (Premchand Goolaup, Mauritius Meteorological Services)	This has been addressed in the second order draft
171	52283	22	9	8	0	0	With regards to the dryness of the Sahel, this reference of "L'Hote Y., Mahé G., Somé B., Triboulet J-P., 2002, Analysis of a Sahelian annual rainfall index from 1896 to 2000; the drought continues, Hydrological Sciences-Journat-des Sciences Hydrologiques, 47(4), 553- 572" can be added. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Further references have been added.
172	35234	22	9	8	9	8	"dryness of the Sahel since 1970" is a bit misleading, since the severe drought of the 70s and 80s has somewhat (but not entirely) alleviated in the last decade or two. (David Rowell, Met Office Hadley Centre)	Further discussion of this drought is added in the SOD
173	46778	22	9	10	0	0	Explain 'local land vegetation feedbacks' -- in other words, clearing vegetation changes local weather. Is that correct? (A. Peter Castro, Maxwell School, Syracuse University)	The reference to local land vegetation feedbacks on dryness has been removed as it is not a clear point in the reference
174	35235	22	9	10	9	10	Would be usefull to cite Ackerley et al. (2011) after "possibly important". Ackerley, D., Booth, B.B.B., Knight, S.H.E., Highwood, E.J., Frame, D.J., Allen, M.R. and Rowell, D.P., 2011: Sensitivity of 20th century Sahel rainfall to sulphate aerosol and CO2 forcing. J. Climate, 24, 4999-5014 (David Rowell, Met Office Hadley Centre)	Thank you, added in the SOD
175	42634	22	9	13	9	23	This section is very short (could be expanded), and it is unclear why certain locations are mentioned and not others. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This has been addressed in the second order draft
176	44287	22	9	13	9	26	The first sentence here is confusing, and should be rewritten for clarity. This section needs to be more comprehensive, and to flow better. For example, it suddently ends with an example for Ethiopia? (Emma Archer van Garderen, CSIR)	This has been addressed in the second order draft
177	48579	22	9	15	0	0	Can the "very likely" be supported here? It probably needs a reference. (Dáithí Stone, University of Cape Town)	This has been addressed in the second order draft
178	40024	22	9	15	9	15	change to 'larger than' (Peter Burt, University of Greenwich)	The section has been rewritten.
179	54478	22	9	15	9	15	Here is an example where the basis for this likelihood assignment is not clear. On what quantitative evidence is this based? Further explanation would be helpful. (Michael Mastrandrea, IPCC WGII TSU)	This has been addressed in the second order draft
180	51230	22	9	15	9	22	"very likely" on line 15 and "likely" on line 22 -- If these terms are being used per the uncertainties guidance for authors (reflecting a probabilistic basis for assignment), they should be italicized. The author team should avoid casual usage of these reserved likelihood terms. (Katharine Mach, IPCC WGII TSU)	This has been addressed in the second order draft
181	36135	22	9	15	9	23	I suggest that projected temperature trends over equatorial eastern and the Horn of Africa be included as well. For example, a study by Anyah and Qiu ( 2011) indicate projected minimum temperature to increase by more than 2 °C above the 1981–2000 average by the end of 21st century in both A1B and A2 scenarios of the AR4 ensemble mean projections. (Richard Anyah, University of Connecticut)	This has been addressed in the second order draft
182	46156	22	9	19	0	20	What are scenarios B2 and A2? If included in the document, should be reference to where to find them. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This has been addressed in the second order draft
183	46157	22	9	22	0	23	Why Ethiopia? What are the characteristics that make Ethiopia more likely to have greater frequency of heat waves and what other	Other references are added to broaden the spatial scope of the
184	36609	22	9	22	9	23	Talking about the frequency of heat wave in Ethiopia where the event does not occur or rarely occur does not give any sound to readers. The (Girmaw Bogale, United Nations Economic Commission for Africa)	This has been addressed in the second order draft
185	51231	22	9	26	0	0	Section 22.2.2. In the further development of this section, the author team should consider and cross-reference findings of the working group 1 contribution to the 5th assessment report, where appropriate. (Katharine Mach, IPCC WGII TSU)	This has been addressed in the second order draft
186	42637	22	9	26	10	7	This entire section seems a bit disconnected, and I suggest that all references to "trends" or past changes in rainfall specify the time period that they are calculated over, so the reader can differentiate between a 10-year trend and a 30-year trend. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	The section has been rewritten in the SOD to address this and other comments
187	44289	22	9	30	9	52	This section, in particular, requires a really careful proofread. (Emma Archer van Garderen, CSIR)	The section has been rewritten in the SOD to address this and other comments
188	46158	22	9	31	0	0	Why are they relying on sources from 11 years ago? Has there been no precipitation assessment since then? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	More recent references have been added in the SOD
189	40025	22	9	31	9	32	superscripts required (Peter Burt, University of Greenwich)	The section has been rewritten.
190	37080	22	9	33	0	0	The assertion that there is a decreasing trend in rainfall over the Mediterranean coast of Africa is not proven. Only one old reference. See Cudennec C., Leduc C., Koutsoyiannis D., 2007. Dryland hydrology in Mediterranean regions—a review. Hydrological Sciences Journal, 52, 6, 1077-1087, doi: 10.1623/hysj.52.6.1077 (Christophe Cudennec, Agrocampus Ouest)	This sentence has been remover in the SOD
191	44288	22	9	34	9	34	The Transvaal? Is this an error in Hulme et al 2001? I would recommend correction. (Emma Archer van Garderen, CSIR)	Corrected
192	37947	22	9	36	0	0	Is the start of the wet season getting later for all of Africa? Or for one particular region - could you be more specific please (Caroline Bain, Met Office)	This statement has been removed as it is too broad
193	46159	22	9	36	0	0	As a trend this is important, but I think emphasis should be on regional impacts. I think it is most relevant to address climate change regionally and not place emphasis on the continent as a whole because although similar trends, the continent is obviously not effected the same way universally. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This has been addressed in the second order draft

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
194	52284	22	9	36	0	0	Instead of saying "For Africa, the start of the wet season is getting progressively later each year (Kniveton et al., 2009).", I suggest to say "For Africa, the onset of the wet season is getting progressively later each year (Kniveton et al., 2009)." In addition, is it possible to be more targeted with some examples? The sentence is dealing with Africa; which part of Africa is concerned? Is it the west Africa? If it is west Africa, some references in AMMA project are available (www.amma-international.org).. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This sentence has been removed as it is too broad and regional specific statements replace it.
195	40026	22	9	36	9	36	all of Africa? Is the wet season equally late throughout? Please quantify. (Peter Burt, University of Greenwich)	"This sentence has been removed as it is too broad and regional specific statements replace it.
196	42635	22	9	36	9	36	This is unclear. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This sentence has been removed as it is too broad and regional specific statements replace it.
197	44649	22	9	36	9	36	Which region(s) and season(s) did this study focus on, and over which time period? It seems unlikely that the arrival of all wet seasons has been observed to be getting later everywhere in Africa. Are there any other studies on this that can also be referenced? If not this line should be worded more cautiously. (Robin Chadwick, UK Met Office)	This sentence has been removed as it is too broad and regional specific statements replace it.
198	46160	22	9	38	0	40	Why is it at odds? What happened that reality does not reflect the 2007 IPCC Assessment prediction and what can be taken from that to make the 2012 IPCC Assessment not make the same miscalculation? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This has been addressed in more detail in the second order draft
199	44650	22	9	38	9	40	It should be stated that the time period of the Funk et al. results suggesting decreased SON rainfall totals in East Africa is the last 30 years. Williams & Funk (2011, 'A westward extension of the warm pool leads to a westward extension of the Walker circulation, drying eastern Africa', Clim. Dyn., DOI:10.1007/s00382-010-0984-y) and Lyon & DeWitt (2011, 'A recent and abrupt decline in the East African long rains', GRL, 39, DOI:10.1029/2011GL050337) connect this recent decline in precipitation to changes in Indian ocean and Pacific sea surface temperatures over this period. Lyon & Dewitt conclude that recent East African precip trends oppose projected climate model trends because recent cooling in the Eastern equatorial Pacific opposes the equatorial Pacific SST warming projected by CMIP3 GCMs in future scenarios. It is possible that this is due to internal multi-decadal variations of Pacific SSTs currently dominating over the response to greenhouse gas forcing, or it could be because of a problem with the model SST projections in this region. (Robin Chadwick, UK Met Office)	This has been addressed in more detail in the second order draft
200	54479	22	9	38	9	40	It is not clear what "anticipate" means in this context. Is this a comparison between an observed trend and a projected change from AR4? If so, it would be useful to clarify this further, and provide further information about the AR4 projection (timeframe, etc.). (Michael Mastrandrea, IPCC WGII TSU)	This has been addressed in more detail in the second order draft
201	40027	22	9	39	9	40	why? (Peter Burt, University of Greenwich)	This has been addressed in more detail in the second order draft
202	46779	22	9	42	0	45	Conway and others have challenged the notion that East Africa is facing a widespread and singular decrease in rainfall. This ought to be given greater prominence. What is troubling, however, is the finding of Rosell & Holmer, as well as others, is that the timing, distribution and duration of rains within the wet seasons seems more unpredictable (A. Peter Castro, Maxwell School, Syracuse University)	Thank you, text added to reflect this and reference added.
203	42636	22	9	42	9	45	This is true (also see Lyon, B., and D.G. DeWitt, 2012: A recent and abrupt decline in the East African long rains. Geophysical Research Letters.), however the trend is for one season and is only about 10 years long and therefore could be the result of decadal fluctuations, and needs to be contextualized when compared to IPCC 2007. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This has been addressed in more detail in the second order draft
204	46161	22	9	44	0	45	This contradicts the previously stated assumption that Ethiopia will have the greatest frequency of heat waves - is that not considered an extreme event? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This is in the context of rainfall. Please also see 22.2.3
205	40028	22	9	47	9	47	insert 'a' before 'number' (Peter Burt, University of Greenwich)	The section has been rewritten.
206	52285	22	9	48	0	0	Instead of saying "Some studies which state a decline of rainfall on both annual and monthly bases agreed with previous IPCC analyses, which anticipate rainfall declines. (Funk, et al,2008; Batisani and Yarnal, 2010).", I suggest to say "Some studies which state a decline of rainfall on both annual and monthly bases agreed with previous IPCC analyses, which anticipate rainfall declines (Funk et al, 2008; Batisani and Yarnal, 2010)." The full stop after declines should be deleted; in the same way, there is a comma after Funk; I deleted it also (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This has been changed in the second order draft
207	54480	22	9	48	9	49	Again, it is not clear what "anticipate" means here. This seems like a comparison of observed trends, but anticipate implies a forward-looking projection. Please clarify the comparison here. (Michael Mastrandrea, IPCC WGII TSU)	This has been addressed in more detail in the second order draft
208	44651	22	9	51	9	52	A reference is needed for this statement about a decrease in the number of rainy days (Robin Chadwick, UK Met Office)	Additional references have been added in the second order draft
209	35697	22	10	2	0	0	I am a bit puzzled as to why the following reference is not cited in this chapter at all (Chapter 22): Lebel, T., Ali, A., 2009, 'Recent trends in the Central and Western Sahel rainfall regime (1990–2007)', Journal of Hydrology 375(1–2), 52–64. (Jonas Nielsen, Copenhagen University)	Reference added in section 22.2.2.1
210	36136	22	10	4	10	7	What is being stated in this section of the report is not clear. Therefore, this part should either be re-written or deleted altogether. (Richard Anyah, University of Connecticut)	This has been rewritten in the SOD
211	41941	22	10	4	10	7	Maybe of interest a mention of some forecasting efforts for Disaster risk management in West Africa. Reference: <Tall Arame, Simon J. Mason, Maarten vanAalst, Pablo Suarez, Youcef Ait-Chellouche, Adama A. Diallo, and Lisette Braman (2011) Using Seasonal Climate Forecasts to Guide Disaster Management: The Red Cross Experience during the 2008 West Africa Floods. International Journal of Geophysics, Volume 2012, Article ID 986016,12pages, doi:10.1155/2012/986016> (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	Thank you for the information. Unfortunately weather forecasting lies outside the context of this section."

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
212	44652	22	10	4	10	7	Are there any other studies on this change in the Nigerian rainy season break? If not, this paragraph should be more cautiously worded. What time period this the study examine? (Robin Chadwick, UK Met Office)	This section has been rewritten in the SOD to address this and other comments
213	40029	22	10	6	10	6	insert 'being' before 'replaced' and change 'days' to 'day' (Peter Burt, University of Greenwich)	The section has been rewritten.
214	42638	22	10	6	10	6	The terminology "gradually fading away" is very unclear. Please specify timeframe, etc. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This section has been rewritten in the SOD to address this and other comments
215	35241	22	10	10	0	0	Section 22.2.2.2: This section rather lacks structure, reading rather like a random mix of disparate paragraphs. (David Rowell, Met Office Hadley Centre)	This section has been rewritten in the SOD to address this and other comments
216	35242	22	10	10	0	0	More discussion of the uncertainty of projected regional changes in this section would seem to me to be almost essential. See Rowell (2012) for example, and references therein. Rowell, D.P., 2012: Sources of Uncertainty in Future Changes in Local Precipitation. Climate Dynamics, in press. (David Rowell, Met Office Hadley Centre)	Text adjusted to reflect this and reference added. Thank you.
217	52286	22	10	10	0	0	The 22.2.2.2 could be improve by this reference: Fontaine B., Roucou P., Monerie P-A., 2011. Changes in the African monsoon region at medium-term time horizon using 12 AR4 coupled models under the A1b emissions scenario, Atmos. Sci. Let. 12: 83–88 (2011) (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Text adjusted to reflect this and reference added. Thank you.
218	42640	22	10	10	10	54	The information in this section seems scattered and is hard to follow. I suggest re-organizing it by region. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This section has been rewritten in the SOD to address this and other comments
219	44290	22	10	10	10	54	This section is fragmented, and doesn't flow well. I would recommend editing for flow, and updating with Tadross et al 2001 (chapter in Davis 2011, ed - The SADC Climate Change Handbook). Further, both for this and the previous section, it would be good to highlight which of the findings are in common. (Emma Archer van Garderen, CSIR)	This section has been rewritten in the SOD to address this and other comments
220	46162	22	10	12	0	13	Efficiency of GCMs in terms of precipitation should definitely be addressed. Range of -15% to 14% is not helpful and contradictory. It's almost not worth it to mention, besides highlighting the point that estimates are very variable and unclear. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been rewritten in the SOD to address this and other comments
221	35236	22	10	12	10	12	Change to "In many regions there is no consensus ...." because there is some consensus for East Africa. (David Rowell, Met Office Hadley Centre)	This section has been rewritten in the SOD to address this and other comments
222	35237	22	10	12	10	15	Does this paragraph refer to data averaged over all Africa. If so, this should be stated (though I'm not convinced of the value of such an analysis). If not, this paragraph somewhat contradicts the following paragraph. (David Rowell, Met Office Hadley Centre)	This section has been rewritten in the SOD to be spatially specific
223	42639	22	10	12	10	15	Does this paragraph refer to the continent of Africa? Or a specific region? (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This section has been rewritten in the SOD to be spatially specific
224	44653	22	10	12	10	15	What region of Africa and season does this paragraph refer to? Is this for mean annual rainfall over the whole of Africa? (Robin Chadwick, UK Met Office)	This section has been rewritten in the SOD to be spatially specific
225	36127	22	10	12	10	54	To my knowledge, two recent studies (Biasutti and Sobel 2009; Patricola and Cook 2010) found a robust agreement across the various climate models of the IPCC CMIP3 ensemble on the seasonal distribution of Sahel rainfall changes (with a drying of the early season and positive rainfall anomaly at the end) in contrast with a large uncertainty for summertime rainfall totals. See: Biasutti, M., and A. H. Sobel (2009), Delayed Sahel rainfall and global seasonal cycle in a warmer climate, Geophys. Res. Lett., 36, L23707, doi:10.1029/2009GL041303. Patricola, C.M. and K.H. Cook (2010) Northern African climate at the end of the twenty-first century: an integrated application of regional and global climate models, Climate Dynamics, 35, 193-212. (benjamin Sultan, IRD)	In the SOD this section has been rewritten to reflect this and these and other references added. Thank you.
226	36729	22	10	14	10	14	The report on rainfall should be in the next paragraph, on precipitation. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This section has been rewritten in the SOD to address this and other comments
227	37948	22	10	17	0	0	The precipitation signal is less clear.' - In the previous paragraph you talked about changes in total precipitation, was this not a discussion of the precipitation signal over Africa? If so I suggest you cut this sentence as it was confusing to read through from the first paragraph to the second. (Caroline Bain, Met Office)	This section has been rewritten in the SOD to address this and other comments
228	48580	22	10	17	0	0	Less clear than what? The previous paragraph was also about the precipitation signal... (Dáithí Stone, University of Cape Town)	This section has been rewritten in the SOD to address this and other comments
229	35238	22	10	17	10	17	I suggest removing this first sentence. Readers know we're discussing precipitation. (David Rowell, Met Office Hadley Centre)	This section has been rewritten in the SOD to address this and other comments
230	44654	22	10	17	10	17	What is the precipitation signal less clear than? (Robin Chadwick, UK Met Office)	This section has been rewritten in the SOD to address this and other comments as well as for greater text clarity
231	45317	22	10	18	10	18	Does this mean "intense" in the precise sense of the word, or just higher total rainfall? (John Caesar, Met Office Hadley Centre)	This section has been rewritten in the SOD to address this and other comments as well as for greater text clarity
232	44655	22	10	20	10	21	There is a robust signal of declining precipitation in CMIP3 climate projections in Southern Africa in JJA (see Fig. 10.9 of IPCC AR4 WG1 Chapter 10) . Although this is noted in the next sentence, the sentence on line 20/21 talks about the scatter in projections and is therefore slightly confusing. There is as much model consensus in Southern Africa as there is in East Africa. (Robin Chadwick, UK Met Office)	This is reflected in the text of the SOD
233	37949	22	10	22	0	0	You state that drying is 'expected' in western southern Africa and an increase in rain will be 'experienced' in eastern southern Africa - these words imply a consistent prediction but in the previous sentence you state that projections are 'less certain in southern Africa'. I recommend you therefore change the sentence to: 'The multi-model mean indicates a drying to the west of southern Africa during summer and more rainfall in the east part of southern Africa in late summer, though there is large uncertainty in these predictions.' (Caroline Bain, Met Office)	This section has been rewritten in the SOD to address this and other comments as well as for greater text clarity

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
234	44656	22	10	23	10	24	This sentence is confusing. Which results agree with which scenario? (Robin Chadwick, UK Met Office)	This section has been rewritten in the SOD to address this and other comments as well as for greater text clarity
235	48581	22	10	23	10	24	With which scenario? (Dáithí Stone, University of Cape Town)	Scenarios are specified in the SOD
236	52287	22	10	25	0	0	In the reference "Giannini et al.,2008" an space is missing between the comma and the date ; please, put "Giannini et al., 2008" The same mistake has been done at lines 46 and 49 also...; please add space between the comma and the date. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The section has been rewritten.
237	37950	22	10	28	0	0	The 5% decrease is presented as if it is a consensus of models - is this the multi-model mean or just a selection of the models? (Caroline Bain, Met Office)	Clarified in the SOD
238	48582	22	10	28	0	0	A climate change scenario for rainfall could suggest anything it wants. I think you are referring to rainfall responses to SRES (or SRES A1B?) emissions scenarios. (Dáithí Stone, University of Cape Town)	Scenarios are specified in the SOD
239	37951	22	10	32	0	0	I think this is the first mention of EARV, so the acronym should be spelt out (Caroline Bain, Met Office)	The section has been rewritten.
240	40030	22	10	32	10	32	EARV = ? (Peter Burt, University of Greenwich)	The section has been rewritten.
241	44657	22	10	32	10	33	Please define the acronym EARV or don't use an acronym. The statement about wet seasons becoming shorter and less reliable needs a reference. (Robin Chadwick, UK Met Office)	Acronym removed
242	46163	22	10	40	0	0	Why predictions for 2046-2065? What is the significance of those years? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Downscalings used the CMIP3 data, which was limited to time slices
243	44658	22	10	45	10	45	Does this statement about the wider horn region include Kenya? There is model consensus for rainfall to increase in much of Kenya in DJF (see Fig. 10.9 of IPCC AR4 WG1 Chapter 10), so this statement that there is no consensus on future precipitation change in the wider horn of Africa is misleading. (Robin Chadwick, UK Met Office)	SOD has been rewritten to be regional specific and addresses issues raised here
244	35239	22	10	47	10	47	This is stated too strongly, I would suggest changing to "most of the models". See: Rowell, D.P., 1996: Reply to comments by Y.C. Sud and W.K.-M. Lau on 'Variability of summer rainfall over tropical north Africa (1906-92): Observations and modelling' by D.P. Rowell, C.K. Folland, K. Maskell and M.N. Ward (April 4, 1995, 121, 669-704): Further analysis of simulated interdecadal and interannual variability of summer rainfall over tropical north Africa. Q. J. R. Meteorol. Soc., 122, 1007-1013. Rowell, D.P., Folland, C.K., Maskell, K. and Ward, M.N., 1995: Variability of summer rainfall over Tropical North Africa (1906-92): Observations and modelling. Q. J. R. Meteorol. Soc., 121, 669-704. However, Scaife et al review a wider range of models, which supports a strong (but not conclusive) statement, so this should be cited too: A.A. Scaife et al 2008, Clim. Dyn., 33, 603. The CLIVAR C20C project: Selected 20th century climate events. Clim. Dyn., 33, 603. (David Rowell, Met Office Hadley Centre)	This has been toned down in the SOD.
245	35240	22	10	49	10	49	This paper also discusses this issue: Rowell, D.P., 2012: Sources of Uncertainty in Future Changes in Local Precipitation. Climate Dynamics, in press (David Rowell, Met Office Hadley Centre)	Added
246	42810	22	11	3	0	0	You may want to also check IFC (2012) CLIMATE RISK AND BUSINESS HYDROPOWER, Kafue Gorge Lower, Zambia. International Finance Corporation. Washington DC (see <a href="http://www1.ifc.org/wps/wcm/connect/1464ab804aa801b1a2f7129e0dc67fc6/ClimateRisk_Hydro_Zambia_ExecSummary.pdf?MO D=AJPERS">http://www1.ifc.org/wps/wcm/connect/1464ab804aa801b1a2f7129e0dc67fc6/ClimateRisk_Hydro_Zambia_ExecSummary.pdf?MO D=AJPERS</a> ). This recently published study has modeled future extreme event scenarios (mostly precipitation) for the Kafue basin area in Zambia, and estimated its potential impact on hydropower and future multiuse water needs. (Sofia Bettencourt, World Bank)	This section has been rewritten in the SOD to be spatially specific and makes use of further references. Thank you for your suggestion
247	51232	22	11	3	11	3	Section 22.2.3. Given the phrase "extreme events" in the title for this section, the author team should consider the focus of the material presented, starting for example with the described "average precipitation and temperature" introduced on line 5. Additionally, overlap of presentation of material with chapter 21 should be eliminated, providing plots and corresponding information in only one chapter. (Katharine Mach, IPCC WGII TSU)	This section has been renamed and rewritten in the SOD. It is regionally specific and does not make use of plots
248	38288	22	11	3	11	19	"Section 22.2.3. Comment..." The content of this paragraph doesn't reflect very well what is in the title. (Tatiana Arivelo, United Nations Economic Commission for Africa)	This section has been renamed in the SOD. It is regionally specific and makes use of further references.
249	44291	22	11	3	11	20	Again, I would recommend updating here with the discussions in Tadross et al 2011. (Emma Archer van Garderen, CSIR)	Reference is being sought
250	41930	22	11	5	11	19	Among extreme events in Africa a particular mention of FLOODS among many other disasters may be relevant at that level (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	This section focuses on rainfall which may cause floods. Please see other sections which refer to floods specifically.
251	36137	22	11	6	11	17	I think it is not very a wise idea to look at the temperature trends based on the spatial patterns over "specific" regional Economic Blocks since the seasonal to multi-decadal variability of climate (temperature) within those blocks can be very different. Also in line 17. (Richard Anyah, University of Connecticut)	The chapter team decided to keep the regional economic blocks for its assessment.
252	40031	22	11	7	11	7	change 'which' to 'with' (Peter Burt, University of Greenwich)	The section has been rewritten.
253	52288	22	11	9	0	18	For the references "Christensen et al. 2007"; "Greene et al. 2009, Hoerling et al. 2006", the comma is missing after the full stop before the date. Please write "Christensen et al., 2007"; "Greene et al., 2009, Hoerling et al., 2006" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The section has been rewritten.
254	38289	22	11	21	11	23	"Figure 22-1 Comment..."Some of the subtitles of the subplots are cut. (Tatiana Arivelo, United Nations Economic Commission for Africa)	Figure has been replaced
255	41931	22	11	24	11	25	Between (22.2. Observed climate trends and Future Projectons ) and (22.3. Vulnerability and Impacts) it may be useful to insert a pack recalling (Major THREATS in the region as a hole or by subregions) (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	This is a valuable comment and must be considered for final draft.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
256	51233	22	11	26	0	0	Section 22.3. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections, aiming to reduce the length of each by at least 50%. (Katharine Mach, IPCC WGII TSU)	Section has been substantially shortened and tightened.
257	48620	22	11	26	37	35	My understanding is that the regional chapters are to be holistic, and in particular are to cross the traditional siloed boundaries of the IPCC WGs. But here we have a section titled "Vulnerability and impacts" which discusses a lot of vulnerability to and impacts of changes in the climate, but nothing about impacts of measures to mitigate (or adapt, although that discussion may be best in 22.4) to climate change. The whole discussion on food security, for instance, mentions biofuels only once, and that as a complicating factor. Yet adoption of biofuels is a major current (and probably future) attempt at mitigation of climate change, so it is not a complicating factor but part of the climate change jigsaw, potentially a major one in terms of impacts on food security. I would guess that oil extraction is the second biggest exporter from Africa (after mining)? How might decreased oil demand in a mitigating world impact wealth, governance, etc.? What might the impacts of a developed world transfer of funds and technology to Africa, under the UNFCCC, be? Perhaps some of these questions are a little over-the-top, in which case ignore them, or no research has been done yet, in which case start the section by saying "we are having to restrict this discussion to impacts of changes in climate variables because no research has been done on impacts from other aspects of the climate change story" (or something more professional). (Dáithí Stone, University of Cape Town)	Some changes have been made to include impact of climate policies. Please see section 22.3.4.6.
258	48583	22	11	28	0	0	Are you not assessing the vulnerability of African systems and sectors, rather than trying to persuade? (Dáithí Stone, University of Cape Town)	We have made some changes to improve clarity. We will address this further in the final draft.
259	44292	22	11	28	11	28	This is a slightly odd way of describing the section's intent. Suggest rewrite. (Emma Archer van Garderen, CSIR)	Has been rewritten
260	44293	22	11	38	12	24	Again, difficult to read in terms of continuity and flow. (Emma Archer van Garderen, CSIR)	The whole section has been rewritten
261	54839	22	11	38	12	31	Section 22.3.1. and Section 22.3.1.1. could be integrated with Section 23.3.1.2. (Monalisa Chatterjee, IPCC WGII TSU)	The whole section has been rewritten
262	46780	22	11	40	0	0	The paper would be stronger if the terms 'poor' and 'poverty' are defined. As is, poverty is not only a technical term regarding people's position within the distribution of income, but often has implicit narratives attached to it: the poor as lacking agency, as ignorant, incapable of helping themselves (as illustrated on page 12 by the phrase 'pulling them out of poverty'). What would be more helpful for readers is to understand that many Africans have small cash incomes, limited access to productive assets (such as land or livestock), limited access to public resources (such as schools and health clinics) and also tend to be politically marginalized. They depend on rainfed agriculture and pastoralism, and even in cities one finds that household agriculture is important. Because of their rural livelihoods and engagement in the urban informal sector, their economic activities are not fully accounted for in national statistics. (A. Peter Castro, Maxwell School, Syracuse University)	The author team would like the reviewer to provide a reference to this statement so that the sentence can be edited in the final draft.
263	46781	22	11	41	0	0	In discussing population growth, it might be useful to the reader to point out that child born in Africa has a much smaller carbon footprint than those born in other continents, although this is not to say that the local impact is not significant. (A. Peter Castro, Maxwell School, Syracuse University)	This has been taken into account as a footnote in the text
264	40032	22	11	43	11	43	insert ', the' after 'Actually' (Peter Burt, University of Greenwich)	The suggested change was made.
265	40033	22	11	44	11	44	reference required (Peter Burt, University of Greenwich)	Charles J.R. Williams and Dominic R. Kniveton, Introduction, in Charles J.R. Williams and Dominic R. Kniveton (eds.), 2011, African Climate and Climate Change: Physical, Social and Political Perspectives, Springer, Advances in Global Change Research series, Vol. 43, London & New York, pp. 1 – 12
266	48584	22	11	46	11	47	On the rebound from what crisis? The recent "Developed World" financial crisis? This didn't affect Africa much, did it? (Other than, with a lag, South Africa.) (Dáithí Stone, University of Cape Town)	The text refers to the global financial crisis which is having some adverse effects on Africa's development efforts and attempt to achieve the MDGs. A number of reports and studies refers to such situation including as referred to in the text Moyo, 2009; Easterly, 2009; Adesina, 2010
267	35698	22	11	52	0	54	Rewrite, poor language. Sentence 52-54, page 11 an example. As is sentence 2-7 on page 12. Sentence 16 use common language 'dwindling every day' this seems out of place here. (Jonas Nielsen, Copenhagen University)	This section as a whole was rewritten
268	46168	22	12	0	15	0	It seems as if the whole section on Millennium Development Goals is meant to show the inability of Africa to achieve development goals and therefore enforce that Africa is especially vulnerable to climate change. I think this idea needs to be developed more before diving into each MDG and should be preceded with a paragraph like Page 15: Line 27-34 (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This comment is true and thus the whole section was re-written to account for the relationship between climate change and MDGs
269	46782	22	12	0	15	0	The section on the MDGs is written in a very passive style, about accomplishments (or especially the lack of it) without shedding much light on the causes for such outcomes. Greater attention should be given to the issues and concerns of implementation, since these factors are likely to be the same ones affecting climate-change interventions. (A. Peter Castro, Maxwell School, Syracuse University)	This comment is true and thus the whole section was re-written to account for the relationship between climate change and MDGs. Also, the wording has been changed. Concern for implementation in terms of global cooperation is added in MDG 8
270	43389	22	12	3	12	8	The socio-economic and environmental considerations are not well articulated here. Probably the authors need to make the connection between limitation in food production and growing population - this is not evident as currently stated. I believe deletion of this portion will not result in any loss of information as this has been stated elsewhere. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WE CARD))	Socioeconomic and environmental considerations are now present in a number of points in the text, yet in a brief and to the point form. For instance, see MDG 1 paragraph 2 and MDG 7 on sustainability



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
271	46164	22	12	4	0	0	70 percent seems like far too high of a percentage. Also I think that "Africa's population" cannot be addressed as a whole on this level. Food needs met by agriculture is far different in South Africa than compared to Somalia., for example. I am also confused as to what is meant by African agriculture "depends on rain at 95 percent." I think you mean that 95 percent of agriculture in Africa is rain-fed. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The sentence was edited concerning rainfed agriculture and the 70% figure was removed as no other reference could support it.
272	48585	22	12	4	0	0	What does "depends on rain at 95%" mean? (Dáithí Stone, University of Cape Town)	The sentence was edited concerning rainfed agriculture
273	40034	22	12	4	12	4	insert 'of the' before 'population's' (Peter Burt, University of Greenwich)	The suggested change was made.
274	48586	22	12	4	12	6	I would dispute this. Vulnerability is highest to rainfall variability perhaps. But the most visible sign of climate change will be in temperature, everywhere. As for impacts, climate change is fundamentally different from current year-to-year variability. A back-of-the-envelope estimate says that for a 2C warming you would need a 12-14% increase in rainfall simply to maintain the water balance at the surface. During wet seasons, CMIP5 climate model projections are expecting 2C by mid-century under RCP4.5, but essentially no change in rainfall. So I expect even the water availability impacts will be temperature-driven, not-rainfall driven. (Dáithí Stone, University of Cape Town)	The author team would like the reviewer to provide a reference to this statement so that the sentence can be edited in the final draft.
275	43390	22	12	8	12	9	I believe the land tenure aspect could be expanded. Land tenure has several connections with climate change - for example extreme temperatures and declining rainfall could lead to desertification of portions of land leading some people without agricultural land and hence putting pressure on the dwindling land - this could be a source of conflict. Moreover, uncertain access to land will discourage long term developments that could be essential for adaptation and mitigation. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	The land tenure is a cross cutting issue and thus appears in different parts of the chapter; e.g. forests, livestock and barriers and limitations to adaptation in Africa
276	43391	22	12	9	12	19	The section dealing with urban issues should be in a separate paragraph (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	The section has been rewritten.
277	40035	22	12	11	12	11	change 'like' to 'such as' (Peter Burt, University of Greenwich)	The suggested change was made.
278	46165	22	12	15	0	0	I don't think "etc." should be included, but rather concrete environmental challenges like food security, less arable land and deforestation associated with urbanization. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The section has been rewritten.
279	40036	22	12	15	12	15	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	The suggested change was made.
280	42811	22	12	15	12	17	The goal for most African countries, is not to preserve the environment per se, but rather to use resources sustainably for the benefit of future generations. (Sofia Bettencourt, World Bank)	The section has been rewritten.
281	46166	22	12	21	0	24	Paragraph needs to be more developed. Understand showing Africa is more vulnerable to climate change because unable to reach development goals, but definitely seems out of place. Needs to be more rationale on placement of paragraph and more of a connection shown between climate change and lack of education. Can be further developed by talking about the connection between scarcity of resources due to climate change requiring more time to collect resources, namely by women and girls, and therefore less time available for education. Lack of extension services for farmers in Africa can also prevent the utilization and spread of innovations and technologies that can help mitigate climate change. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience. Also, more rationale has been behind the trends, e.g. education are presented
282	40037	22	12	21	12	21	goal 4 of what? (Peter Burt, University of Greenwich)	The whole sentence was deleted as it didn't make sense with the previous text.
283	36138	22	12	21	12	24	Should be moved to the MDGs section, 23.3.1.2 (Richard Anyah, University of Connecticut)	The Socioeconomic section and the MDGs have been merged in the revised and more concise version of the section.
284	42812	22	12	21	12	24	Suggest modifying or removing this sentence, since it does not follow logically that countries that are unable to meet their MDGs are the most vulnerable - recent climate related disaster data shows, for example, that the highest economic losses and damages are occurring in developed countries. References to MDGs also fall best within Section 23.3.1.2 (Sofia Bettencourt, World Bank)	The whole sentence has been modified to show that there's a relationship between development and climate change vulnerability and adaptive capacity of countries and communities
285	37952	22	12	23	12	24	The last sentence seems like a bit of a jump from the previous sentence. I would suggest you rewrite as 'The inability to fully reach development goals illustrates how Africa struggles to adapt to its changing society. This does suggest that Africa may have enhanced vulnerability to future changes in climate.' (Caroline Bain, Met Office)	The whole sentence has been modified to show that there's a relationship between development and climate change vulnerability and adaptive capacity of countries and communities
286	48587	22	12	24	0	0	This is confusing vulnerability with poverty, isn't it? While they are often correlated, this is not always the case. (Dáithí Stone, University of Cape Town)	The whole sentence has been modified to show that there's a relationship between development and climate change vulnerability and adaptive capacity of countries and communities
287	51234	22	12	27	0	0	Section 22.3.1.1. Given consideration of interacting stressors in a number of sections across the chapter, the author team should strongly consider deleting this subsection. (Katharine Mach, IPCC WGII TSU)	The multi-stressors concept has been discussed under various sectors and thus doesn't appear as a sub-section here anymore.
288	44294	22	12	27	12	27	This is a critical section - one that will be an important area to which to link from many other areas of the chapter. (Emma Archer van Garderen, CSIR)	The multi-stressors concept has been discussed under various sectors and thus doesn't appear as a sub-section here.
289	42814	22	12	32	0	0	Suggest placing most of the description of MDGs on a box, since some are less relevant to vulnerability to climate change. (Sofia Bettencourt, World Bank)	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
290	51235	22	12	32	0	0	Section 22.3.1.2. The author team should aim to reduce the length of this section by 60-70%. There may be possibilities for using a table to present and summarize information on the MDGs and progress towards them. (Katharine Mach, IPCC WGII TSU)	This section has been integrated with the socioeconomic context to climate change in Africa and its contents has been edited and modified to focus on MDGs and their relationship with climate change. The contents considering that they were integrated with the socioeconomic context has been reduced considerably.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
291	36139	22	12	32	12	32	I think it may be necessary to review the status of all MDG goals with respect to the influence and challenges of climate change in achieving the goals. (Richard Anyah, University of Connecticut)	The section has been rewritten taking into account emphasising the inter-relationship between status of MDGs and climate change
292	44295	22	12	32	12	32	It would be helpful to introduce this section by describing why a discussion of MDGs here is important. (Emma Archer van Garderen, CSIR)	This has been done by relating MDGs to climate change vulnerability and adaptive capacity in Africa
293	36730	22	12	32	15	34	The heading of Section 22.3.1.2 Millennium Development Goals is not really pertinent to the content, which is a general description of the socio-economic situation in the continent. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
294	36762	22	12	32	15	34	Section 22.3.1.2 Millennium Development Goals. This section is presented with no coherence in structure and contents. The linkage between the MDG and the impact on climate change needs to be elaborated clearly and directly. This linkage is not seen in the current text. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
295	48591	22	12	32	15	34	I'm unsure whether there is a case for filling 3 pages with stuff that is not explicitly related to climate change. Admittedly this is one of the dominant development settings, but I don't see a case made here for why this section is needed. The closest bit to making that case would be the final paragraph, which is the only one that mentions climate change. But it simply lists "climate change may make X worse", and comes across as implying that we have no idea if climate change may make X worse, may make X better, or may not affect X; if we know more then this should be indicated, otherwise I think these statements are meaningless. (Dáithí Stone, University of Cape Town)	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
296	51236	22	12	40	12	40	Here it would be helpful to consider indicating the metric used to define poverty for these statistics. (Katharine Mach, IPCC WGII TSU)	Suggested revision The metric used ot define poverty was below the poverty line, that means US\$ 1.25 per person a day. This will be specified in the final draft.
297	46167	22	12	47	0	0	Is 2005-2007 the most recent data on the undernourished population? Seems like should be something more recent than 5 years ago. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	A new data set covering the period 1990-92 up to 2010-2012 is used
298	35700	22	12	53	0	0	Section is poorly written. Many 'however', 'meanwhile' and so on. Sentence 53, page 12 refer to a crisis, which one? (Jonas Nielsen, Copenhagen University)	The crisis was meant to refer to the economic crisis and increasing food prices. Still, this has been edited in the new version
299	48588	22	12	53	0	0	Which crisis? (Dáithí Stone, University of Cape Town)	The crisis was meant to refer to the economic crisis and increasing food prices. Still, this has been edited in the new version
300	48589	22	13	1	13	2	When? From when? (Dáithí Stone, University of Cape Town)	The whole sentence was deleted as it didn't make sense with the previous text.
301	40038	22	13	4	13	4	delete 'has' (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise verion of this section
302	40039	22	13	8	13	8	MDG = ? Should it be MDGs or MDG? (Peter Burt, University of Greenwich)	It's MDG, but the whole text was edited to clearly reflect the essence of what this section should represent
303	40040	22	13	9	13	9	net enrollment rate in what? (Peter Burt, University of Greenwich)	in primary education was added in the text
304	40041	22	13	11	13	11	insert 'a' before 'considerable' (Peter Burt, University of Greenwich)	grammetrical comments addressed
305	40042	22	13	12	13	12	insert , after 'communities' (Peter Burt, University of Greenwich)	grammetrical comments addressed
306	40043	22	13	14	13	14	delete 'ones' and give examples (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise verion of this section
307	35701	22	13	15	0	0	On page 13, sentence 15, there is a reference to 'African sub-regions', this has not been defined and I wonder what it is? (Jonas Nielsen, Copenhagen University)	done as a footnote when the term sub-region was used in the section
308	40044	22	13	15	13	16	reference required (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise verion of this section
309	35702	22	13	21	0	0	Same page sentence 21 it is noted that 'it was found', found by whom? (Jonas Nielsen, Copenhagen University)	The whole sentence was removed in the revised more concise verion of this section
310	48590	22	13	21	0	0	What are we measuring here? (Dáithí Stone, University of Cape Town)	The whole sentence was removed in the revised more concise verion of this section
311	35703	22	13	21	0	27	Clumsy (Jonas Nielsen, Copenhagen University)	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
312	40045	22	13	29	13	29	I presume MDG? Goal number? (Peter Burt, University of Greenwich)	The actual wording of the goal is used in the revised version
313	40046	22	13	30	13	32	reference required (Peter Burt, University of Greenwich)	Reference is stated at the end of the following sentence
314	51237	22	13	34	13	34	"unlikely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The whole sentence was removed in the revised more concise verion of this section
315	35705	22	13	37	0	0	Refers, I think, to gender equality? (Jonas Nielsen, Copenhagen University)	Yes, and the text has been edited to clarify it.
316	35704	22	13	37	0	39	Does not make sense (Jonas Nielsen, Copenhagen University)	Sentence has been removed

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
317	40047	22	13	38	13	38	change 'wage' to 'waged' (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise version of this section
318	40048	22	13	40	13	40	change 'are' to 'is' (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise version of this section
319	40049	22	13	42	13	42	insert 'a' before 'large' (Peter Burt, University of Greenwich)	The whole sentence was removed in the revised more concise version of this section
320	35706	22	13	45	0	46	Surely child mortality is not a goal! (Jonas Nielsen, Copenhagen University)	The actual wording of the goal is used in the revised version
321	40050	22	13	45	13	45	MDG ? Goal number ? (Peter Burt, University of Greenwich)	The actual wording of the goal is used in the revised version
322	40051	22	13	45	13	45	delete 'downturn' (Peter Burt, University of Greenwich)	grammetrical comments addressed
323	40052	22	14	15	14	15	delete 'is' (Peter Burt, University of Greenwich)	grammetrical comments addressed
324	40053	22	14	22	14	22	change 'mean' to 'means' and delete 'that' (Peter Burt, University of Greenwich)	grammetrical comments addressed
325	40054	22	14	23	14	23	change 'has' to 'have' (Peter Burt, University of Greenwich)	grammetrical comments addressed
326	35707	22	14	24	0	27	Notes that "it was suggested," by whom? (Jonas Nielsen, Copenhagen University)	The sentence was edited and the reference is included
327	46783	22	14	29	0	36	The term 'protection' needs to be clarified, especially regarding whether such conservation efforts are participatory or non-participatory in their set up. For rural communities, as shown by Dan Brockington's Fortress Conservation, non-participatory 'protection' ends up an enclosure movement, worsening their lives. (A. Peter Castro, Maxwell School, Syracuse University)	The view in the comment is inserted in the text as a footnote
328	40055	22	14	29	14	29	MDG ? Goal number ? (Peter Burt, University of Greenwich)	The actual wording and number of the goal is used in the revised version
329	44296	22	14	29	14	36	A reference here to the GEO-5 process would be most helpful. (Emma Archer van Garderen, CSIR)	information about biodiversity in Africa, from the GEO-5, was incorporated in this paragraph
330	40056	22	14	34	14	34	delete 'had' (Peter Burt, University of Greenwich)	grammetrical comments addressed
331	42815	22	14	42	14	43	Financial crises, as stated by the second to last sentence, affect mostly the formal job market and can lead to expansion of informal networks. Hence, the last sentence (inferring that women are most affected by these crises since they hold primarily informal jobs) appears contradictory. (Sofia Bettencourt, World Bank)	The sentence was rephrased to be "Global crises, including the financial crisis of 2007/08, may contribute to a surge in informal employment due to job losses in the formal sector and may force more men to compete for more jobs in the informal sector and thus rendered women working in the sector more vulnerable"
332	41932	22	14	48	14	49	This sentence can be balanced by recalling that the figure is different in medium and small sized cities compared to the situation in larger cities. The secondary cities merits more attention that ever (Possible reference as above: Cissé et al. 2010) (Guéliadio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	The sentence has been rephrased to contain reference to small and medium size cities
333	40057	22	15	6	15	6	use % for consistency (Peter Burt, University of Greenwich)	Done
334	46784	22	15	10	0	0	The section on 'partnership' would be an ideal place to bring up human rights based approaches to development, and the need to take into account participation by local communities through acts that will enhance their abilities as partners, such as recognition of local land rights (A. Peter Castro, Maxwell School, Syracuse University)	The sentence has been rephrased to contain, in this context, reference community participation
335	40058	22	15	10	15	10	MDG ? Goal number ? (Peter Burt, University of Greenwich)	The actual wording and number of the goal is used in the revised version
336	36140	22	15	10	15	15	The year of Paris Declaration ( 2005) should be included, and the Accra Agenda for Action ( 2008) as well as Africa NEPAD's peer evaluation process need to be highlighted. (Richard Anyah, University of Connecticut)	The details has been added and the sentence was rephrased
337	36743	22	15	10	15	34	It seems that the text here is directly copied from an assessment relating to MDGs. The linkage between this text and the assessment on climate change impact is weak. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The handling of the MDGs in the new revision attempted to put the MDGs in the context of climate change vulnerability and resilience.
338	51238	22	15	11	15	11	The author team may wish to revisit the phrasing on this line to ensure a formulation that would not be interpreted as potentially prescriptive. (Katharine Mach, IPCC WGII TSU)	The author team will consider removing this sentence as it cannot be phrased in any other way rather than as policy prescriptive.
339	40059	22	15	14	15	14	insert line break and delete 'is' (Peter Burt, University of Greenwich)	grammetrical comments addressed
340	43392	22	15	14	15	22	I am wondering why the effects of climate change is not included among the factors that have limited the attainment of the MDGs. I believe there is enough evidence to show that climate change has affected agricultura production, health of people and the capacity of governments to attain the MDGs. i however note that climate change is implicated in the following section with regards to resilience (Lines 27 - 34). On the other hand I would recommend that the section dealing with MDG will be more appropriate just after section 22.1.2 Structure of the regions. In effect the section on MDG should be 22.1.3. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	climate change is considered to be linked to socioeconomic development in general, but there's no definite relationship between the two. Climate change here is considered to be an additional stressor to such developmental efforts and also development may influence the resilience and adaptive capacities in Africa
341	40060	22	15	15	15	15	using 'include' implies information is missing (Peter Burt, University of Greenwich)	The sentence was rephrased
342	42813	22	15	27	15	34	Suggest moving this paragraph to the top of Section 23.2.1.2, since it is important to provide the context to readers of the potential interactions between MDGs and vulnerability. On the first sentence, make it clear that the relationship cuts both ways ( climate change can also make it more difficult for countries to achieve some MDGs). (Sofia Bettencourt, World Bank)	The introductory paragraph of this section has been edited to reflect this concept.
343	44297	22	15	27	15	34	This section will need to be linked to the previous section on multiple stressors, when it is ready. (Emma Archer van Garderen, CSIR)	Please see response to comments # 287 and 288 above.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
344	35708	22	15	28	0	0	There is a reference to "Africans." This is a pretty big term/statement. (Jonas Nielsen, Copenhagen University)	The sentence was rephrased to refer to adaptive capacities to climate change rather than vulnerability
345	35909	22	15	37	19	28	Need to include discussions on the Congo basin area. Forest ecosystems are left out. The Africa great Lakes region need to be discussed for ground water recharge capacity. (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	Some of these topics have been included in the chapter please see sections 22.2.2.2., 22.3.2.1.1., 22.3.3., 22.4.4.2., 22.4.5., 22.4.5.4., 22.4.5.6., 22.6.1.
346	36610	22	15	41	15	49	Shifting of the geographical location of the biome is not only as a result of climate change but also the population pressure which leads to more land use and land change. Is it possible to figure out the contribution of climate change for geographical shift of the biome from the references? It would be nice for the reader to understand easily. (Girmaw Bogale, United Nations Economic Commission for Africa)	Yes, human land-use change can be a contributing factor. Text has been added to specify which cases are attributable to anthropogenic climate change and which are not.
347	40061	22	15	44	15	44	delete 'research' (Peter Burt, University of Greenwich)	Deleted.
348	44298	22	16	4	16	21	This paragraph somewhat contradicts the previous statement that there are few of these studies in Africa. (Emma Archer van Garderen, CSIR)	Changing the previous sentence will be considered in the final draft
349	46169	22	16	24	0	0	Why is Figure 22-5 of 2071-2100 climates, when referenced as combination of 1901 - 2002 and 1990-2100 data. Why wouldn't show past, present, as well as future trends? I feel that would be more powerful and comprehensive (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The original publication (Gonzalez et al. 2010) provides figures that show past trends and future projections. Chapter 22 does not include those figures due to space limitations.
350	44299	22	16	28	16	36	There have been some critiques of certain of the approaches presented here. I would recommend referencing at least one critique of the niche modelling approach for balance. (Emma Archer van Garderen, CSIR)	A sentence on limitations has been added, citing Hanspach, J., I. Kühn, O. Schweiger, S. Pompe, and S. Klotz. 2011. Geographical patterns in prediction errors of species distribution models. <i>Global Ecology and Biogeography</i> 20: 779-788.
351	36763	22	16	39	0	0	Section 22.3.2.2 Freshwater. In this section, the authors mixed the freshwater system with freshwater eco-system. The information provided is also mixed for the two systems. Given the upper level heading of Ecosystems (22.3.2), it seems that Section 22.3.2.2 should be written as freshwater ecosystem. Then the relevant information is required. Section 22.3.2.2.1 in the current text seems to me more about freshwater resources, instead of freshwater ecosystem. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	freshwater ecosystems section has been separated from water resource section and is subsection for the broader section on ecosystems
352	36745	22	16	39	16	39	22.3.2.2 Freshwater should be presented as a separate section in parallel to 22.3.2 Ecosystem. In the current version, the text on ecosystem and freshwater is mixed in one section without a logical story line. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	freshwater ecosystems section has been separated from water resource section and is subsection for the broader section on ecosystems
353	48592	22	16	42	0	0	Why the increased rainfall variability? I don't think this something we are confident will be occurring across the continent. (Dáithí Stone, University of Cape Town)	Change to "Higher temperatures and changes in rainfall variability..."
354	37953	22	16	42	16	43	... increased rainfall variability..' - this is not mentioned in section 22.2.2.2 as a consensus in the models. If increased rainfall variability is a likely consequence of climate change it should be made clear in section 22.2.2.2. If it is not a likely consequence or there is no or little model evidence, this part of the sentence should be removed or rephrased so that it is clear this is not a future projection. (Caroline Bain, Met Office)	Agree, Change to "Higher temperatures and changes in rainfall variability...."
355	48593	22	16	43	16	44	Do you really mean the "likely"s here? These have very specific meaning in IPCCese. (Dáithí Stone, University of Cape Town)	The section has been revised.
356	51239	22	16	43	16	44	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The section has been revised.
357	36744	22	16	45	16	45	Not necessary to refer to Box 22-1 here. It can be confusing because the Box is given much later in the report. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The section has been revised.
358	40578	22	16	51	0	0	The article firstly assess the Tana River basin in Kenya and may be cited in this section where the river discharge is projected to increase in the future climate. T. Nakaegawa, C. Wachana, and KAKUSHIN Team-3 Modeling Group. First impact assessment of hydrological cycle in the Tana River basin, Kenya, under a changing climate in the late 21st Century. <i>Hydrological Research Letters</i> , Vol. 6, pp.29-34, (2012). (Toshiyuki Nakaegawa, Meteorological Research Institute)	thank you for the suggestion
359	48594	22	16	51	19	12	I like these subsections, especially 22.3.2.2.3, nicely written. I am wondering though what they are doing under "Ecosystems"? They seem to be about hydrology, or maybe to some extent water resources. (Dáithí Stone, University of Cape Town)	This is a helpful comment, and the chapter will consider merging this information with water resources in the second order draft.
360	46170	22	17	1	0	11	With so many GCMs referenced, especially in this paragraph, I think it would be advantageous to include a glossary of all the GCMs referenced to make it what is being said more visible and tangible. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	WGII glossary defines key concepts used in the chapters, lack of space doesn't allow us to provide such details in the chapters.
361	36611	22	17	15	17	16	The association between the annual rainfall variability and ENSO is clear from observation studies. I did see the relevance of this sentence here. (Girmaw Bogale, United Nations Economic Commission for Africa)	Thank you, this will be retained.
362	40062	22	17	16	17	16	second 'n' of Nino/Nina should be an enye. (Peter Burt, University of Greenwich)	ok
363	37116	22	17	24	0	0	Impact on freshwater ecosystems in West Africa are not well covered. Recommend to look at the following weblink, including the bibliographical references: <a href="http://www.esalifdiop.org/documents/CCBook.pdf">http://www.esalifdiop.org/documents/CCBook.pdf</a> (Salif Diop, UNEP - SAB - DEWA )	The title is 'Impact on freshwater ecosystems in East Africa Rift Valley' so it would be inappropriate to refer to ecosystems in West Africa in this section

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
364	36612	22	17	26	17	54	The domain of subtitle is East African Rift Valley. However, the discussion on the paragraphs is not only bounded in the domain. Like Zambia, southern Africa, Congo (Girmaw Bogale, United Nations Economic Commission for Africa)	Initial subtitle was: 'Impacts of climate change on surface waters (lakes, rivers) ecology, water supply and quality in East African Rift Valley and Southern Africa' so if the 'southern Africa' has been removed from the title it changes the contribution to a great extent, will be addressed in the next draft
365	40063	22	17	29	17	29	superscripts required (Peter Burt, University of Greenwich)	superscripts provided
366	40064	22	17	32	17	32	second 'n' of Nino should be an enye. (Peter Burt, University of Greenwich)	second 'n' of Nino made into enye
367	44300	22	17	41	17	42	A peculiar sentence. Why do these examples of rivers appear here so specifically? (Emma Archer van Garderen, CSIR)	Examples of rivers appear because of the context of the paragraph/preceding sentence is on rivers (see line 37)
368	37954	22	17	42	0	0	... , a process that is influenced by temperature.' This is a little vague. Could add some detail such as 'Nevertheless, the amount of water inflow for rivers... are determined mainly by the amount of rainfall within their catchments. In turn rainfall is also influenced by temperature (then your explanation of how... or link into next paragraph). (Caroline Bain, Met Office)	Sentence reconstructed
369	51240	22	17	44	17	44	It would be preferable to indicate the approximate time frame for these observed changes. (Katharine Mach, IPCC WGII TSU)	timeframe of observed changes provided with supporting literature
370	40065	22	17	53	18	1	reference required (Peter Burt, University of Greenwich)	References provided
371	46171	22	18	5	0	6	See Figure 22-6. I think this graphic can be much more reader friendly as a table. It is very text heavy and I think it can be condensed to emphasize the changes and impacts. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Is this meant for authors? If so may you please provide the graphic referred to?
372	54840	22	18	5	18	6	The author team may wish to reduce the text in the figure and add impact information from other sectors. (Monalisa Chatterjee, IPCC WGII TSU)	Is this meant for authors? If so may you please provide the table referred to?
373	51241	22	18	8	18	10	It would be preferable to indicate the approximate time frame for these observed changes. (Katharine Mach, IPCC WGII TSU)	A time frame for the changes with supporting literature has been provided
374	41933	22	18	14	18	15	A mention of wetlands is lacking. In Africa both rural and urban wetlands are concerned by challenges linked to climate change. (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	Should I provide a section on wetlands?
375	36764	22	18	16	0	0	Section 22.3.2.2.3 Groundwater. Again it is not clear if this section is about groundwater availability and supply or about the groundwater ecosystem. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This section is about groundwater availability.
376	36141	22	18	18	18	54	It should be noted that in many parts of Africa monitoring of groundwater is not comprehensively done or adequately documented and thus mapping of groundwater potential is equally incomplete. But, recent research indicates the potential of groundwater resources in some of the driest parts of Africa ( e.g MacDonald et al., 2012: Environ. Research Letters) (Richard Anyah, University of Connecticut)	Thank you for the reference. It has been incorporated into the section.
377	37957	22	18	18	19	12	The tone of section 22.3.2.2.3 is slightly inconsistent with the overall findings of section 22.2 which suggested little clear signal of increased drought conditions. Either drought conditions should be explicitly included/mentioned in section 22.2 or section 22.3.2.2.3 must change it's tone and reference to increased or prolonged drought (Caroline Bain, Met Office)	The text has been modified to reflect uncertainties about future drought severity. This is alluded in sections 22.2.2.2 and 22.2.3.
378	37955	22	18	27	18	29	This is the first mention of the possibility of increased frequency of prolonged drought - is this a confirmed climate projection? If so, it should be mentioned in section 22.2. If not this sentence should be removed or at least justified. (Caroline Bain, Met Office)	This sentence is removed
379	37956	22	18	47	0	0	What evidence is there to suggest that 'climate change may reduce groundwater recharge in semi-arid zones'. If there is evidence available it should be discussed and related back to the projected changes discussion in section 22.2 (Caroline Bain, Met Office)	The three cited studies in this paragraph.
380	46785	22	18	50	0	0	Rather than discussing how social factors will 'dwarf' climate change's impact on water supply, why not frame the analysis in terms of how climate change will exacerbate these social factors? (A. Peter Castro, Maxwell School, Syracuse University)	Good suggestion.
381	37114	22	19	0	0	0	As general remarks: the are weaknesses in this chapter: insufficient and NOT up-to-date references; lack of integration between sections and a rather descriptive chapter than critical analysis; absence of real data analysis and assessment that could provide some indications of change based on facts; still some gaps in the analysis, including some sections that need to be filled up, etc...One important reference that may need to be consulted throughout: <a href="http://www.unep.org/roa/amcn/docs/publications/guidebook_ClimateChange.pdf">http://www.unep.org/roa/amcn/docs/publications/guidebook_ClimateChange.pdf</a> (Salif Diop, UNEP - SAB - DEWA )	We have tried to improve the quality of the assessment in the revised version and also update our references. We have cited several UNEP reports. We will consider this reference in the next draft.
382	44301	22	19	1	19	6	Again, a multiple stressors approach is critical to reference here - suggest again cross referencing back to that section when it is written. (Emma Archer van Garderen, CSIR)	A multi-stressors context is included (e.g. population growth, urbanization, land use change noted)
383	46397	22	19	5	0	0	Additional reference: Mather, A.A. 2008. Coastal erosion and sea level rise: Are municipalities prepared? Journal of the Institute of Municipal Engineers in South Africa, March 2008 (Andrew Mather, eThekwin Municipality)	This reference is being considered for the adaptation section.
384	46172	22	19	6	0	0	I think more can be said on the ties between increased irrigation, food security, and agriculture. With crops and livestock being such a large user of water, I think it should be addressed as to how much water is actually used for agriculture and emphasize the need for more research and development of rain water harvesting, solar drip irrigation and other more sustainable solutions. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Due to space limitations on this chapter it is not possible to cover that topic. However, rainwater harvesting and drip irrigation are included elsewhere in the chapter.
385	37115	22	19	8	19	12	There is a need to consult other references related to groundwater resources and climate change in order to address the direct and indirect impacts of CC on GW resources in Africa. E.g. Braune and Xu (2009) point to the need to differentiate between recharge scenarios under different hydrological regimes in Africa. While the more humid regime has the full spectrum of recharge contributions (seasonal, annual and inter-annual), under arid and semi-arid conditions, the contribution is largely episodic - See Ref. Braune, E. and Xu, Y. 2009. The role of ground water in sub-Saharan Africa. Ground Water Journal. April 2009. (Salif Diop, UNEP - SAB - DEWA )	Thank you for the reference. It has been incorporated into the section.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
386	40066	22	19	11	19	12	move 'fully' to after 'continent' to remove split infinitive and improve clarity (Peter Burt, University of Greenwich)	Corrected
387	37117	22	19	15	0	0	Recommend for coastal and oceans systems to include some new references including references at the end of the article; e.g. <a href="http://www.esalifdiop.org/documents/SD2012.pdf">http://www.esalifdiop.org/documents/SD2012.pdf</a> (Salif Diop, UNEP - SAB - DEWA)	This reference has been added.
388	42816	22	19	15	0	0	River delta flooding is also an important impact in coastal areas, since many coastal settlements are located in their vicinity (Sofia Bettencourt, World Bank)	River delta flooding has been added in the SOD.
389	40067	22	19	17	19	19	badly written sentence. English needs attention (Peter Burt, University of Greenwich)	Sentence has been revised.
390	46396	22	19	17	19	19	Additional reference Mather and Stretch 2012. A perspective on sea level rise and coastal storm surge from Southern and Eastern Africa: A case study near Durban, Water 2012, 4, 237-259; doi:10.3390/w4010237. (Andrew Mather, eThekweni Municipality)	This reference has been added.
391	51242	22	19	18	19	18	It would be helpful to clarify further what is meant by "like it was experimented." (Katharine Mach, IPCC WGII TSU)	Sentence has been revised.
392	40068	22	19	19	19	19	change 'like' to 'such as' (Peter Burt, University of Greenwich)	The suggested change was made.
393	37958	22	19	19	19	21	Rain et al, 2011 seems to be focussed more on North America than Africa. It's fine to include the conclusion here (increased migration to the coast if there is increased drought inland), but only if it is put in the context of the paper. (Caroline Bain, Met Office)	we have revised it.
394	40069	22	19	23	19	23	replace 'done' with 'made' (Peter Burt, University of Greenwich)	The suggested change was made.
395	42817	22	19	31	0	0	Attribution of impacts and vulnerability of coastal areas to climate change or sea level rise is extremely difficult due to the influence of non-climate drivers - lack of available land and/or uncertain tenure (leading to proliferation of slums in low-lying areas), poor drainage maintenance, sand and other coastal aggregate mining, unsuitable coastal structures, etc. This section should mention the relative importance of these non-climate drivers, as indicated by the SREX (Sofia Bettencourt, World Bank)	Yes, the chapter has addressed non climate drivers in several parts including 22.3.1 and 22.4. To avoid repetition we have not discussed in the impacts section.
396	54841	22	19	31	0	0	The author team may wish to add a synthesized conclusion about impact and vulnerability of coastal and ocean systems in Africa and them move into specific examples. (Monalisa Chatterjee, IPCC WGII TSU)	A sentence has been added.
397	44302	22	19	31	19	31	Perhaps begin this section with some general findings derived from the case studies below? (Emma Archer van Garderen, CSIR)	A sentence has been added.
398	40070	22	19	36	19	36	delete 'of' (Peter Burt, University of Greenwich)	The suggested change was made.
399	46173	22	19	38	0	40	See Figure 22-7. I think this graphic needs to better specify the results with adaptation and the results without adaptation. The colors are far too faint and I think it would be more helpful to have a more precise scale to better show differences. I fully understand what the graphs are showing, but I think they could be more reader friendly. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	To be addressed in final draft, better versions will be provided.
400	46174	22	20	2	0	0	See Table 22-2. Need better description of what percentages mean under "sea-rise scenarios" and needs to include the amount of climate refugees associated with land inundated. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	In the final draft the table has been moved to a different section where additional explanation has been added in the text.
401	46175	22	20	4	0	0	Is there anymore data on countries that can point to the total costs of adaptation being far lower than the total cost of social and economic damages from climate change? I feel this point should be majorly emphasized to stimulate discussion on the absolute necessity for climate adaptation funding, for both environmentally and economically responsible reasons. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	more discussion on costs and funding for adaptation has been added in the final draft.
402	44303	22	20	7	20	8	Which authors are referred to here? (Emma Archer van Garderen, CSIR)	Sentence has been revised.
403	40071	22	20	12	20	12	delete 2nd 'the' (Peter Burt, University of Greenwich)	Sentence has been revised.
404	40072	22	20	13	20	13	delete 'The' (Peter Burt, University of Greenwich)	The suggested change was made.
405	44304	22	20	15	20	18	No reference here to the INGC Phase 1 report in Mozambique? (Emma Archer van Garderen, CSIR)	Relevant references have been added.
406	42818	22	20	24	0	0	There are some fundamental differences in the way ICZM is applied in developed countries and its potential in Africa, where municipal institutions tend to be considerably weaker, and property insurance is generally not a viable regulatory option (particularly in urban slums). An alternative approach is for municipal governments to develop growth poles/corridors attracting settlements away from vulnerable coastal areas. (Sofia Bettencourt, World Bank)	This paragraph has been integrated in the adaptation section.
407	48598	22	20	24	0	0	The section numbering is inconsistent with what preceded it. (Dáithí Stone, University of Cape Town)	Section umbering has been revised.
408	51243	22	20	24	0	0	Section 22.3.2.2. The author team should consider moving this material to 22.4. (Katharine Mach, IPCC WGII TSU)	This material has been moved to adaptation section.
409	54842	22	20	24	0	0	The author team may wish to integrate this section with adaptation section 22.4. (Monalisa Chatterjee, IPCC WGII TSU)	This material has been moved to adaptation section.
410	36731	22	20	24	21	9	Section 22.3.2.2 Adaptation should be moved to Section 22.4 Adaptation in Africa. Alternatively, include adaptation in all the sectors to keep the consistence of the structure. Then Section 22.4 only addresses the cross-cutting issues concerning adaptation. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This material has been moved to adaptation section.
411	44305	22	20	26	20	34	Again, I suggest starting with general findings here, before focusing on the specific case studies below. (Emma Archer van Garderen, CSIR)	This material has been moved to adaptation section.
412	46398	22	20	31	0	0	Additional reference: Mather, A.A. 2008. Coastal erosion and sea level rise: Are municipalities prepared? Journal of the Institute of Municipal Engineers in South Africa, March 2008 (Andrew Mather, eThekweni Municipality)	we have used another more recent publication from this author in the final draft.
413	40073	22	20	36	20	36	sentence does not make sense, and reference required (Peter Burt, University of Greenwich)	This material has been moved to adaptation section.
414	40074	22	20	50	20	50	change 'requisite' to 'require' (Peter Burt, University of Greenwich)	This material has been moved to adaptation section.
415	40075	22	20	52	20	52	ICZM = ? (Peter Burt, University of Greenwich)	Use of this term has been reconsidered.
416	40076	22	20	53	20	53	change 'like' to 'such as' (Peter Burt, University of Greenwich)	The suggested change was made.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
417	46176	22	21	9	0	0	Needs to be far more discussion on climate refugees in this section and the inevitable economic and social impacts it will have on the countries where refugees are most likely to flee too (South Africa, the United States?). (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Please see section 22.3.6.
418	51244	22	21	11	0	0	Section 22.3.2.3. For this section, the author team should consider and cross-reference the findings of chapter 6 and 30. (Katharine Mach, IPCC WGII TSU)	Has been addressed in the final draft
419	48010	22	21	11	23	36	This section on impacts to the Sahel is very difficult to review, since the subsections on land degradation and water availability are both blank. Desertification impacts cannot be assessed without considering water, soil loss and land degradation. (Patricia Jacobberger-Jellison, NASA)	These sections have been revised.
420	52090	22	21	14	21	16	For this introduction of ocean acidification, in addition to providing a reference to chapter 6, the author team should also consider providing a reference to the report glossary, which contains a definition of the term. (Katharine Mach, IPCC WGII TSU)	ok
421	48595	22	21	24	21	32	This paragraph seems a bit of a digression to me. (Dáithí Stone, University of Cape Town)	The paragraph has been removed.
422	40077	22	21	29	21	29	what, only one beetle? (Peter Burt, University of Greenwich)	The paragraph has been removed.
423	46177	22	21	39	0	0	Need definition of symbol - what does it mean. Should be clarified for the non-scientific community - especially because it is of importance, "Particularly [the symbol] should be limiting on these reefs." (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The paragraph has been removed.
424	40078	22	21	39	21	39	what is Qarag? (Peter Burt, University of Greenwich)	The paragraph has been removed.
425	40079	22	21	42	21	42	units missing (Peter Burt, University of Greenwich)	The paragraph has been removed.
426	40080	22	21	42	21	42	change 'like' to 'such as' (Peter Burt, University of Greenwich)	The paragraph has been removed.
427	48596	22	21	47	22	2	What is the connection with Africa? (Dáithí Stone, University of Cape Town)	Most of these paragraphs have been removed.
428	40081	22	21	53	21	53	WIO = ? (Peter Burt, University of Greenwich)	removed from final draft
429	51245	22	21	54	21	54	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	It will be changed in the final draft.
430	48597	22	22	5	22	17	This is all about climate and all about the South African coast. (Dáithí Stone, University of Cape Town)	This paragraph has been removed.
431	46178	22	22	8	0	0	What would be the effects of a cooling ocean, such as off of the western, southern, and Port Elizabeth coast? What is the explanation for cooling waters and what effect does it have on fisheries, coral reefs, and coastal upwellings? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This paragraph has been removed.
432	40082	22	22	17	22	17	delete 'the' (Peter Burt, University of Greenwich)	The suggested change was made.
433	54843	22	22	20	0	0	Section 22.3.2.4. The author team may add a conceptual diagram to explain the processes and linkages between different components. (Monalisa Chatterjee, IPCC WGII TSU)	due to space constraints we have decided to not add a figure
434	44306	22	22	20	22	20	See comment made on this section in the earlier Table of Contents (above) (Emma Archer van Garderen, CSIR)	Thanks
435	36746	22	22	20	23	36	The information in '22.3.2.4 Key Processes and Trends should be incorporated in the relevant sub-sections in 22.3.2. It seems to me that it is not necessary to have a separate section for the key processes. E.g, Water availability can be merged into 'freshwater' (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The placing of these sections have been revised.
436	35910	22	22	20	23	38	Include deforestation in the Congo Basin (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	A new section on deforestation has been added.
437	46179	22	22	22	0	0	Why has the analysis not been updated? And why doesn't a continent-wide analysis of land degradation exist? I see this as very important data, especially in terms of agriculture and food security. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Although the 1997 UNEP analysis has not been updated, Section 22.3.2.4.1 does assess a wide range of recent literature on desertification in the Sahel.
438	48599	22	22	22	0	0	I'm confused. This subsection on desertification is falling under "Coastal and ocean systems"... (Dáithí Stone, University of Cape Town)	Thanks for catching this error. The sub-section "Key Processes and Trends" will be renumbered so that it is the first level under Section 22.3.2 "Ecosystems."
439	40084	22	22	22	22	22	do you mean ecological/climate zones (Peter Burt, University of Greenwich)	The heading has been changed to "Desertification in the African Sahel"
440	35699	22	22	23	0	24	The conclusion is not really supported and poorly written. (Jonas Nielsen, Copenhagen University)	Sentence edited and UNEP 1997 cited.
441	36143	22	22	24	22	31	I suggest that some of the research findings from other parts of the continent should be included. For example, Otieno and Anyah (2012: Climate Research) have shown using satellite-derived (LANDSAT) land use/cover classification that large portions of the forested land over parts of the Greater Horn of Africa have been cleared to create space for crops/agriculture, with a phenomenal increasing in area under crops from just about 7% in Kenya in the 1980s to over 18% during 2000s (Richard Anyah, University of Connecticut)	This paragraph in Chapter 22 discusses land degradation while Otieno and Anyah discuss land use change. So, it is not an appropriate citation at this point.
442	40085	22	22	26	22	26	delete , after 'fertility' (Peter Burt, University of Greenwich)	If this referred to page 23, the suggested change was made.
443	48600	22	22	28	0	0	Southern Africa is not in the Sahel. (Dáithí Stone, University of Cape Town)	Yes, the sentence has been deleted.
444	44307	22	22	33	22	36	It would be useful here to cross reference with the relevant sections earlier in the chapter. (Emma Archer van Garderen, CSIR)	The chapter references IPCC Volume 1, Chapter 2.
445	36613	22	22	35	22	35	The sentence Increasing sea surface temperature governs the rainfall decline. This sentence is vague. Which ocean or parts of the Ocean has a relationship with Sahelian rainfall? (Girmaw Bogale, United Nations Economic Commission for Africa)	Details have been added to the sentence.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
446	48601	22	22	35	22	36	There is evidence for this yes, but I don't think it's entirely clear. Certainly the mechanisms are still poorly understood, so I would qualify this attribution statement. (Dáithí Stone, University of Cape Town)	A substantial body of published research supports sea surface temperature as the principal factor (Giannini et al. 2003, Held et al. 2005, Biasutti and Giannini 2006, Hoerling et al. 2006, and Shanahan et al. 2009). The text also identifies reduction of vegetation cover as a contributing factor.
447	35709	22	22	38	0	0	I am a bit puzzled as to why the following reference is not cited in this section: Lebel, T., Ali, A., 2009, 'Recent trends in the Central and Western Sahel rainfall regime (1990–2007)', Journal of Hydrology 375(1–2), 52–64. As far as I know Charney (1975) (Page 22, sentence 38) is a contested and problematic reference for various reasons: scientific and political. Please check this. (Jonas Nielsen, Copenhagen University)	Lebel and Ali (2009) is now cited. In addition, the text clearly identifies sea surface temperature as the principal factor governing the rainfall decline. Increased albedo is a contributing factor, as identified by Charney and confirmed by other published research, including Kucharski, F., N. Zeng, and E. Kalnay. 2012. A further assessment of vegetation feedback on decadal Sahel rainfall variability. Climate Dynamics. doi: 10.1007/s00382-012-1397-x (now cited in the chapter).
448	48602	22	22	43	22	46	Again, I don't think we're quite that certain yet. (Dáithí Stone, University of Cape Town)	Numerous research publications have examined causal factors in the warming of sea-surface temperatures that control Sahel rainfall and attributed the warming to anthropogenic greenhouse gases (Held et al. 2005, Biasutti and Giannini 2006, Zhang et al. 2007).
449	40086	22	22	47	22	48	bad English: replace 'Better managing risks' with 'Managing risks linked to...context better..' (Peter Burt, University of Greenwich)	This comment probably refers to page 23 rather than page 22. The sentence was slightly revised.
450	46180	22	22	48	0	50	I think it would be helpful to have graphics showing both trends: short-term changes of grasses and herbaceous vegetation and long-term changes in trees and woody species. What does this look like and what does it mean for soils and agriculture? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The numerous references from page 22, line 52 to page 23, line 26 provide graphics of this type, but have not been included in Chapter 22 due to space limitations.
451	40087	22	22	52	22	52	see previous comment (Peter Burt, University of Greenwich)	This comment probably refers to page 23 rather than page 22. The sentence was revised.
452	40083	22	22	54	23	2	text missing (Peter Burt, University of Greenwich)	This comment probably refers to page 23 rather than page 22. The sentence was slightly revised.
453	40088	22	23	3	23	3	text scrambled (Peter Burt, University of Greenwich)	This comment probably refers to page 24 rather than page 23. The scrambled text was cleaned up.
454	40089	22	23	5	23	5	replace 'of' with 'by' (Peter Burt, University of Greenwich)	This comment probably refers to page 24 rather than page 23. The suggested change was made.
455	40090	22	23	25	23	25	change 'South' to 'south' (Peter Burt, University of Greenwich)	This comment probably refers to page 24 rather than page 23. The spelling was corrected.
456	36765	22	23	29	0	0	Section 22.3.2.4.2 Land degradation. I doubt if the climate change is a major cause of the land degradation. If not, this section may not be needed as it is not directly related to climate change and the impact. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	It has been removed.
457	51246	22	23	29	23	34	Sections 22.3.2.4.2 and 22.3.2.4.3. The author team should consider incorporating these potential sections into other sections of the chapter, not separately developing them here. (Katharine Mach, IPCC WGII TSU)	These have been removed.
458	44308	22	23	29	23	39	This is confusing in terms of structure. Why are these sections here - are these subsections of 'Key processes and trends' ? What is the link to the rest of the chapter? (Emma Archer van Garderen, CSIR)	These have been removed.
459	54845	22	23	39	0	0	Each sector discussion follows a different organizing principle, the author team may wish to coordinate and literature permitting, have a consistent organizing principle for different sectors. (Monalisa Chatterjee, IPCC WGII TSU)	These have been removed.
460	40091	22	23	39	23	39	change 'moderately benefit to 'benefot moderately' (Peter Burt, University of Greenwich)	If this referred to page 24, the suggested change was made.
461	35911	22	23	39	27	39	What about bush meat and Non Timber Forest Products (NTFP)? (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	Due to space limitations on this chapter it is not possible to cover that topic.
462	40092	22	23	40	23	40	replace 'warm temperatures' with 'higher temperatures' ('warm temperature' is physically meaningless) (Peter Burt, University of Greenwich)	Corrected
463	36766	22	23	41	0	0	Section 22.3.3.1 Food Production Systems and Food Security. The authors should use tables to provide synthesis of the observed and projected trends in the food production systems (crops, livestock, etc.) in different regions in Africa. Section 22.3.3.1.6 Adaptation, agriculture and food security should be moved to Section 22.4 Adaptation in Africa. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The suggestion to integrate section 22.3.3.1.6 with 22.4 has been taken.
464	42819	22	23	41	0	0	The second and third paragraphs in this section seem to fit better under crops (Section 22.3.3.2) (Sofia Bettencourt, World Bank)	The intent of these paragraphs is to provide an overview.
465	54844	22	23	41	0	0	Section 22.3.3. The author team may wish to add a table with key findings for different crops/ primary sector products, also a separate table could be added to summarize the climate related or non climate related food security challenges in the region. (Monalisa Chatterjee, IPCC WGII TSU)	A table has not yet been added. At the LAM4 the team shall look for ways to further refine the presentation of information, such as through tables.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
466	43395	22	23	41	28	37	This section documents the effects of climate change on major food crops and animals. It clearly suggests that certain areas may become unsuitable for the production of certain crops and or animals. There should be some part in this section wherein the challenges of new farming in a particular environment that was used to a totally different farming system. This also has implication for land tenure. For example moving of tree crops to higher altitudes that were hitherto grown to cereals would require knowledge of the new crop and its management practices in addition to growing perennial crops as opposed to annuals. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	This is a good suggestion. However, space limitations in this chapter (and lack of literature on this topic) make it not possible to cover that topic.
467	46786	22	23	43	0	44	A reader unfamiliar with African agricultural systems will not have any sense of the capacities that exist within them for managing risks. It just sounds like a litany of problems and incapacity ('poverty, weak institutions, lack of access' etc.). I am not talking about being politically correct or 'nice' regarding Africans and their long-term agricultural practices (particularly in smallhold farming and pastoralism), but rather starting with the recognition that if they did not know what they were doing, how to manage risks, etc. , that they would have not survived to the present. Building on local capacity, including regarding risk, needs stronger emphasis; it's featured later on in the report, but needs to be included as a significant feature from the beginning. (A. Peter Castro, Maxwell School, Syracuse University)	The adaptation section does address the issue of existing capacities and resilience.
468	40093	22	23	45	23	45	bad English. Don't start sentence with 'But' (Peter Burt, University of Greenwich)	Offending grammar has been removed.
469	40094	22	23	47	23	47	text missing (Peter Burt, University of Greenwich)	Corrected
470	40095	22	23	50	23	50	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
471	44309	22	24	1	24	3	Again suggest cross reference to relevant sections earlier in the chapter (as well as later) (Emma Archer van Garderen, CSIR)	Agreed. Cross-referencing will be better in the SOD.
472	51247	22	24	3	24	27	"Likely" on line 3 and "very likely" on lines 19 and 27 -- If these terms are being used per the uncertainties guidance for authors (reflecting a probabilistic basis for assignment), they should be italicized. Casual usage of these reserved likelihood term should be avoided. (Katharine Mach, IPCC WGII TSU)	The chapter ensured more consistency and appropriate usage of uncertainty language in the SOD.
473	46181	22	24	9	0	0	Need more description about concept of a "novel climate." (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Reference to novel climates not in SOD.
474	42641	22	24	14	25	39	It seems that most of these studies focus on the effects of changing temperature. Which ones take into account projected changes in rainfall or CO2 fertilization, and does that change the result? (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	Chapter 7 of the WG2 report is covering this topic.
475	42820	22	24	19	0	0	Please see also S. Jain (2007) An Empirical Economic Assessment of Impacts of Climate Change on Agriculture in Zambia. World Bank Policy Research Working Paper 4291 (see link below). This paper concludes that CC effects on maize will depend on the interactions between temperature and rainfall, and the seasonal distribution of rainfall. <a href="http://elibrary.worldbank.org/docserver/download/4291.pdf?expires=1344124290&amp;id=id&amp;accname=guest&amp;checksum=7FAA3EE2D502B997841E05FBA82C219E">http://elibrary.worldbank.org/docserver/download/4291.pdf?expires=1344124290&amp;id=id&amp;accname=guest&amp;checksum=7FAA3EE2D502B997841E05FBA82C219E</a> (Sofia Bettencourt, World Bank)	Noted. Thank you.
476	46787	22	24	19	0	0	There should be some contextualization, as per the National Research Council's Lost Crops of Africa Series, that many of Africa's cereals are already well-adapted to the region's climatic variability. This is a reflection of, and evidence for, local risk response. (A. Peter Castro, Maxwell School, Syracuse University)	This is an excellent point, however not all aspects can be covered due to very tight page length restrictions. Local risk management responses are covered in the adaptation section.
477	48603	22	24	19	0	0	Do you actually mean the "very likely"? (Dáithí Stone, University of Cape Town)	Yes. Very likely is in the sentence.
478	36128	22	24	19	24	32	The paper from Roudier et al. (2011) provides a useful meta-analysis of the results of 16 published papers and provides an overall assessment of the potential impact of climate change on future yields in West Africa. Results reveal that despite a large dispersion of future yield changes, the median response to climate change is a negative impact with a yield loss near -11%. It should be cited in this section. See: Roudier P., Sultan B., Quirion P., Berg A. (2011) The impact of future climate change on West African agriculture: what does the recent literature say? Global Environmental Change, doi:10.1016/j.gloenvcha.2011.04.007. (benjamin Sultan, IRD)	Thank you for the reference. It has been incorporated into the section.
479	51248	22	24	22	24	22	It would be preferable to indicate more specifically the relevant scenario of warming considered here. (Katharine Mach, IPCC WGII TSU)	Scenarios have been added WHERE the source articles themselves used them. Not all source articles used SRES scenarios.
480	42940	22	24	24	0	0	Need to mention the potential positive impact of CO2 increase on crop yield - and quality. Also that various studies such as Lobell et al do not include this and hence may increase impacts more than they otherwise would be (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Detailed coverage of CO2 fertilization specific to Africa is beyond the scope of this chapter, and would seem to be more appropriately covered in Chapter 7.
481	42939	22	24	25	0	0	Insert after 'elevations': 'thereby implying change in distribution of maize cropping' (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Done
482	48604	22	24	27	24	28	This is under the condition of all things being equal, right? With agricultural development it is probably "very likely" (?) that production will increase, but not by as much as it might have (or might need to to satisfy a certain desired level of demand). The decreased annual precipitation is also a caveat here, because we are not sure that will happen. So altogether this statement is under a fairly strict scenario. (Dáithí Stone, University of Cape Town)	Good points. The language of this sentence has been changed to address these concerns.
483	46182	22	24	34	0	37	I think we should include the impacts of climate change, not only on grains and staple crops, but also the impact climate change will have on other crops. What are the effects of climate change on indigenous vegetables and livestock? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Due to space limitations on this chapter it is not possible to cover this topic, and the literature on this topic is extremely limited.
484	51249	22	24	40	24	40	It would be helpful to indicate more specifically what is meant by "warmer temperatures" here--warmer temperatures of what magnitude? (Katharine Mach, IPCC WGII TSU)	The temperature projection on which this is based has been inserted in the text.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
485	43393	22	24	45	24	47	The statement ....capturing potential benefits from cassava would require significantly greater access to fertilizers and pest management options undermines the inherent ability of cassava to withstand relatively harsher conditions as well as limited inputs compared to other crops particularly cereals. Generally cassava does well under low inputs, but the statement appears to suggest that ypone would need more inputs and pest management under cassava compared to rice and maize. This is contrary to general knowledge on cassava. Probably even though cassava could replace these crops there would be need for increased productivity which may require inputs to boost production (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	That sentence does not appear in the subsequent second order draft.
486	48605	22	25	1	25	6	There are a lot of "could"s in this sentence. Is this something for which there is some decent evidence? (Dáithí Stone, University of Cape Town)	Yes there is evidence, though this is the first study to be done on these perennial crops thus the avoidance of more confident language.
487	40096	22	25	3	25	3	delete 'areas' (Peter Burt, University of Greenwich)	Deleted.
488	40097	22	25	5	25	6	sense not clear (Peter Burt, University of Greenwich)	How so? Please elaborate.
489	46183	22	25	8	0	39	Is it possible to include data that would represent the economic losses for small-scale farmers who rely on coffee, tea, cotton and cocoa production? How many more people in Ghana, Cote d'Ivoire, Kenya, and Uganda would be in poverty if climatic conditions severely reduced suitable areas for production? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Due to space limitations on this chapter it is not possible to cover this topic, and this author is not aware of any studies on this topic.
490	40098	22	25	8	25	9	what does 'current suitability ranking' mean? (Peter Burt, University of Greenwich)	The text has been changed and this phrase no longer appears.
491	51250	22	25	9	25	14	As possible, the author team should indicate the relevant climate/temperature/ socio-economic scenarios for these statements. Additionally, the sentence on lines 10-11 would benefit from clarification. (Katharine Mach, IPCC WGII TSU)	These have now been included and the sentence on lines 10-11 deleted.
492	40099	22	25	10	25	11	text does not make sense (Peter Burt, University of Greenwich)	Sentence has been deleted.
493	48606	22	25	10	25	11	Huh? (Dáithí Stone, University of Cape Town)	Sentence has been deleted.
494	42941	22	25	11	0	0	What does this mean in practise? (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Sentence has been deleted.
495	40100	22	25	12	25	12	change 'meters' (sic) to 'm' and give reference (Peter Burt, University of Greenwich)	Sentence has been deleted; information is now in a table.
496	48607	22	25	16	25	23	How does this fit under "Food production systems and food security"? (Dáithí Stone, University of Cape Town)	Cotton is a cash crop; cash is used to purchase food.
497	40101	22	25	19	25	21	text incomplete and reference required (Peter Burt, University of Greenwich)	Sentence has been deleted; information is now in a table.
498	40102	22	25	25	25	25	replace 'warm temperatures' with 'higher temperatures' ('warm temperature' is physically meaningless) (Peter Burt, University of Greenwich)	Done.
499	48608	22	25	25	25	39	Most sentences in this paragraph revolve around "could". If you can't say anything more definitive then don't say it or say that you can't. (Dáithí Stone, University of Cape Town)	This paragraph has been deleted and the information placed in a table.
500	40103	22	25	26	25	28	reference required (Peter Burt, University of Greenwich)	This paragraph has been deleted and the information placed in a table. However the sentences referred to did have references (Eitzinger et al., 2011a,b; Läderach et al., 2010)
501	51251	22	25	27	25	31	As possible, the author team should indicate the relevant climate/temperature/socio-economic scenarios for the statements. (Katharine Mach, IPCC WGII TSU)	Done. It is now in a table.
502	40104	22	25	30	25	31	reference required (Peter Burt, University of Greenwich)	This paragraph has been deleted and the information placed in a table. However the sentences referred to did have references (Eitzinger et al., 2011a,b; Läderach et al., 2010)
503	42942	22	25	31	0	36	Repetition (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	This paragraph has been deleted and the information placed in a table.
504	40105	22	25	35	25	36	reference required (Peter Burt, University of Greenwich)	This paragraph has been deleted and the information placed in a table. However the sentences referred to did have references (Eitzinger et al., 2011a,b; Läderach et al., 2010)
505	42943	22	25	42	0	0	No mention of the potential offsetting impacts of CO2 increase vs rainfall and temperature change (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	The studies did not examine CO2 enrichment and I'm not aware of any studies on CO2 fert effects on these perennial crops.
506	48150	22	26	4	26	4	After Freier et al., 2012 add: Schilling, J., Freier, K.P., Hertig, E. & Scheffran, J. (2012): Climate change, vulnerability and adaptation in North Africa with focus on Morocco, Agriculture, Ecosystems and Environment, 156, pp. 12-26. (Jürgen Scheffran, University of Hamburg)	Thank you for the reference. It has been incorporated into the section.
507	40106	22	26	7	26	7	change 'analysis' to 'analyses' (Peter Burt, University of Greenwich)	The text has changed and that word no longer appears.
508	40107	22	26	9	26	9	delete 'the'. Who are 'They'? (Peter Burt, University of Greenwich)	The text has changed and that word no longer appears.
509	51252	22	26	9	26	11	For these statements, it would be preferable to indicate the relevant climate/temperature scenarios. (Katharine Mach, IPCC WGII TSU)	Scenarios have been added WHERE the source articles themselves used them. Not all source articles used SRES scenarios.
510	46184	22	26	15	0	0	Merge what two sets? The need for water in feed production and drinking water for livestock? The need for water in feed production and water scarcity due to loss of feed available from forage crops and crop residue? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Text deleted.
511	40108	22	26	15	26	15	odd text! (Peter Burt, University of Greenwich)	Text deleted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
512	44310	22	26	15	26	15	One example of an editor's comment still appearing in text? There are others (e.g. pg 29, second paragraph) (Emma Archer van Garderen, CSIR)	Text deleted.
513	40109	22	26	22	26	22	replace 'cattle head' with 'head of cattle' and quantify 'modestly' (Peter Burt, University of Greenwich)	Corrected
514	46185	22	26	24	0	26	But what effects would increase livestock dominated food production have on climate change? Would more emphasis on livestock increase GHGs from livestock? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This is beyond the scope of this chapter. WGII addresses livestock emissions.
515	51253	22	26	26	26	31	"likely" on lines 26 and 31 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The chapter will ensure more consistency and appropriate usage of uncertainty language in the SOD.
516	40110	22	26	29	26	29	odd text! (Peter Burt, University of Greenwich)	Text deleted.
517	44311	22	26	34	26	38	It would have been useful here to have a slightly broader discussion of the implications of high temperatures for heat stress in the livestock sector. (Emma Archer van Garderen, CSIR)	Good suggestion. This issue will be addressed in the SOD.
518	46186	22	26	43	0	0	What do main tick vector species due to cattle? What would be the economic and social consequences of increased ticks? Would this happen if there was less than a 2°C increase? What happens to tick distribution - or other pathogens and parasites - if there is a greater than 2°C increase in temperature? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	These are all good questions for which there have been no studies done.
519	40111	22	26	43	26	43	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
520	42944	22	26	49	0	0	Do these reduce or increase risks? Are the results variable by region? (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Unclear whether they reduce or increase risks. Those authors simply noted the complexity of these systems and urged caution in overattributing to climate change what may be influenced by non-climatic factors.
521	40112	22	27	6	27	6	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
522	40113	22	27	7	27	7	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
523	40114	22	27	8	27	8	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
524	46187	22	27	9	0	0	How easy is it to introduce shade-grown coffee production in Ethiopia, Kenya, Uganda, Rwanda, and Burundi? Is it affordable? Are there any success stories of implementing shade-grown coffee? Do small-scale farmers have the knowledge and resources to make this adjustment? It is a seemingly simple and effective solution - is it implemented properly? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Due to space limitations on this chapter it is not possible to cover this topic.
525	52289	22	27	11	0	0	After the reference Jaramillo et al, 2011, there is a full stop and the next sentence should start with a capital letter "[...] of coffee pests (as reviewed by Jaramillo et al., 2011). Adaptation For highland [...]" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Corrected
526	40115	22	27	13	27	13	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
527	40116	22	27	13	27	13	change 'meters' (sic) to 'm' and give reference (Peter Burt, University of Greenwich)	Corrected
528	40117	22	27	17	27	17	genus/species names required (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
529	51254	22	27	19	27	19	The author team should revisit and check the descriptors used here for the scenarios. (Katharine Mach, IPCC WGII TSU)	Scenarios have been added WHERE the source articles themselves used them. Not all source articles used SRES scenarios.
530	40118	22	27	20	27	21	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
531	46189	22	27	22	0	27	Check latest statistics from FAO's 2012 State of the World's Fisheries and Aquaculture. Does not exactly match up with what I read for the VSO on Aquaculture and Fisheries. About the same, but definitely more recent data. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Will look for more recent data as you suggest.
532	40119	22	27	22	27	22	genus/species names should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
533	43394	22	27	23	27	25	This seem to contradict the assertion in lines 45 - 47 that cassava production will require greater pest management options. Need to tidy this up! (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WE CARD))	Thank you, have done so.
534	51255	22	27	28	0	0	Section 22.3.3.1.4. The author team should consider merging this section with 22.3.2.3 or reducing overlap. Additionally, the author team should consider and cross-reference the findings of chapter 6 and 30. (Katharine Mach, IPCC WGII TSU)	The issue of merging will be discussed with CLAs and a decision made. Cross-referencing with Chapter 7, in which fisheries is covered, is being done.
535	48609	22	27	35	27	38	It might be worth pointing out though that whether this process has noticeably affected the fishery is still uncertain. (Dáithí Stone, University of Cape Town)	Uncertainty about the effect on fisheries has been added.
536	46190	22	27	37	0	0	Any data on the effects climate change has on aquaculture? Focused only on marine and inland capture (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	No studies have been done on effects on aquaculture in Africa. Chapter 7 is covering aquaculture and likely have covered this topic.
537	46191	22	27	37	0	0	Any need to address the detrimental effects of "water grabs." In a paragraph that is discussing solutions is it appropriate to address the role other countries are playing in controlling vulnerable water sources? Or is that too political for a more scientifically focused assessment? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Important issue but in the absence of scientific literature it can't be covered in this assessment.
538	46188	22	27	48	0	0	What characteristics make certain countries' coral reefs more vulnerable than others in terms of the statement "Tanzania was among nine countries that were determined to be most vulnerable to the effects of coral reef degradation"? Does it vary from the latter analysis of western Indian Ocean coastal communities (Page 27: Line 49 - 54)? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The role of biophysical impacts and livelihoods dependency will be made more clear in the SOD version of this section.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
539	40120	22	28	2	28	2	change 'are' to 'is' (Peter Burt, University of Greenwich)	Changed.
540	40121	22	28	2	28	2	insert 'on' before 'ecosystems' (Peter Burt, University of Greenwich)	Done.
541	48611	22	28	2	28	27	I think these three paragraphs could be highly condensed. (Dáithí Stone, University of Cape Town)	They've been condensed.
542	51256	22	28	26	28	26	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The chapter will ensure more consistency and appropriate usage of uncertainty language in the SOD.
543	51257	22	28	30	28	30	The author team may wish to revisit wording on this line to ensure a formulation that would not be interpreted as potentially being prescriptive. (Katharine Mach, IPCC WGII TSU)	Wording removed.
544	48610	22	28	33	28	35	Unfortunately you aren't supposed to be making recommendations here. (Dáithí Stone, University of Cape Town)	Wording removed.
545	46788	22	28	42	0	0	A growing threat to food security is government policy favoring private agribusiness investment, including by foreign interests, which often includes privatization of common lands and water supply, as well as involuntary resettlement. (A. Peter Castro, Maxwell School, Syracuse University)	Agreed.
546	35710	22	28	46	0	47	Page 28, sentence 46-47: I will be a bit shameless here and suggest you look at a recent paper of mine: Nielsen, J.Ø., Vigh, H., 2012. Adaptive lives. Navigating the global food crisis in a changing climate. Global Environ. Change (2012), <a href="http://dx.doi.org/10.1016/j.gloenvcha.2012.03.010">http://dx.doi.org/10.1016/j.gloenvcha.2012.03.010</a> . This will provide you with another example of what is discussed here from West Africa. (Jonas Nielsen, Copenhagen University)	Thank you for the reference. It will be considered for the adaptation section.
547	48612	22	28	48	28	50	This sounds like you are saying the rural poor are sensitive to global food price spikes and volatility, but wouldn't they be highly insulated from that because they either grow most of their own food or else purchase it from a closed local market? (Dáithí Stone, University of Cape Town)	Local markets are becoming increasingly sensitive to market signals from urban areas thus there does appear to be a knock-on effect of prices to rural markets.
548	51258	22	29	3	29	3	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The chapter will ensure more consistency and appropriate usage of uncertainty language in the SOD.
549	42945	22	29	6	0	0	'African food security' - can this be broken down into sub-continental responses? (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Agree that the term is too broad. Will look for literature that brings more sub-regional nuance.
550	48613	22	29	7	29	8	A crucial bit of information is missing here: did the "global" food price spike in 2008 penetrate Africa? Where did it penetrate? Only urban areas? Only countries strongly integrated into the global food market? Or more generally? (Dáithí Stone, University of Cape Town)	Yes it did penetrate Africa and predominantly in urban areas. The references provided in that paragraph refer to food price spikes during that period. The exact causality of food price spikes varies between the world's regions but every region experienced food price spikes at the same time and global market price signals played a key role in the price spikes.
551	46789	22	29	8	0	0	In fact, the 2007-08 spike in food prices was one of the main triggers for the so-called global land-grab affecting Africa and some other areas. (A. Peter Castro, Maxwell School, Syracuse University)	Yes, indeed it was.
552	40122	22	29	13	29	13	projection out of date. It is now 2012, what is the population? (Peter Burt, University of Greenwich)	More recent population data sought.
553	48614	22	29	13	29	14	Whatever Section F1 might be, this sounds like an extremely strong statement to me. (Dáithí Stone, University of Cape Town)	Statement removed.
554	51259	22	29	13	29	16	The author team needs to clarify what is meant by section F here. (Katharine Mach, IPCC WGII TSU)	Statement removed.
555	46790	22	29	18	0	0	Yes, urban diets depend more on markets than rural ones, but this is not necessarily a useful dichotomy because in many places rural families regularly purchase food, particularly the poor, who lack the capacity to be self-provisioning, while many urban families also raise crops and possess livestock. (A. Peter Castro, Maxwell School, Syracuse University)	Your point that this dichotomy is no longer a valid way of looking at food systems is a good one. I will incorporate text into this section that makes note of this.
556	44893	22	29	18	0	26	This section emphasizes the urban diet of Africa, and food security, as totally dependent on the market, neglecting urban farming and informal food markets which proliferate in many African cities (e.g. Mozambique, South Africa, etc) (FAO, 2007). (Celine Veríssimo, University College London)	Good point. Language in this section will be modified to reflect this.
557	42821	22	29	24	29	26	The impacts of market chain interruptions (e.g. due to flood damage to main roads) are now typically examined in Post Disaster Needs Assessments (PDNA) - see, for example, the Joint Damage and Needs Assessment for Madagascar (2008) available for download at <a href="http://gfdrr.org">gfdrr.org</a> (Sofia Bettencourt, World Bank)	Noted. Thank you.
558	46192	22	29	25	0	26	Elaborate on food waste issues and how they are maximized due to climate change. What is the gap between production and consumption? Is the main vulnerability improper storage? What are solutions and how can they be implemented in specific areas? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Good points but beyond the scope of this chapter given its extreme space constraints.
559	46193	22	29	38	0	0	I think there should be more information about how climate change affects indigenous crops and livestock, how indigenous plants contribute to dwindling biodiversity, and what are possible solutions based on indigenous knowledge? Specific examples from successful locations and an analysis of common characteristics between success stories focusing on economic and environmental benefits from growing indigenous crops. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Indigenous knowledge is covered in the adaptation section of this chapter and elsewhere throughout the report. Space constraints in this chapter prevent a full exploration of these and other issues.
560	36732	22	29	40	29	49	Sub-heading 22.3.3.1.6 is not in the content table. Adaptation should be moved to 22.4. The sub-section itself needs a substantial beef-up. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This has been moved to the adaptation section.
561	42822	22	29	42	29	49	At the same time, since farmers are adapting primarily to observed (and mostly short-term) trends, it is critically important to disseminate available information on long-term climate trends. (Sofia Bettencourt, World Bank)	Agreed. The adaptation section takes this issue up.
562	42946	22	29	50	0	0	Are there adaptation examples to use which go beyond the farm-level? (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	This section has been integrated into the adaptation section of the chapter in which adaptations beyond the farm level are assessed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
563	51260	22	30	1	0	0	Section 22.3.3.2. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections, aiming for 50% reduction in length for each subsection. Additionally, throughout, the author team should consider and cross-reference the findings of Chapter 11. (Katharine Mach, IPCC WGII TSU)	Well noted and done.
564	44312	22	30	1	33	46	No introduction here? This is a significant omission - the sections really need to be introduced. Significant text on food, water borne and vector borne diseases, yet so little on heat stress? And such a big focus on malaria - is this appropriate? An entire paragraph on cutaneous leishmaniasis? Such a small focus on heat stress - and almost no mention of heat stress in urban areas? Not a well written section - I recommend a rigorous restructuring and edit. (Emma Archer van Garderen, CSIR)	The suggestion has been well noted and the necessary restructuring and editing done.
565	36733	22	30	3	30	3	Sub-heading 22.3.3.2.1 is not in the table of content. The same problem also exists in other sections. There is no 22.x.x.x level heading in the table of content. Therefore, it should not be used in the text as a general rule. Please check the whole chapter for the matter. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The level of the headings was updated and the level 22.x.x.x no longer occurs in the chapter.
566	48615	22	30	5	30	34	Doesn't the statement of the first sentence depend on what the health risks of climate change are? The rest of this only indicates that the African population (which is what I assume you mean by Africa) is vulnerable to health risk generally, but not whether it is vulnerable to the particular health risks driven by climate change. (Dáithí Stone, University of Cape Town)	The sentence has been modified to bring out the meaning that health risks in Africa arise from interactions of climate with the already vulnerable state of Africa
567	51261	22	30	7	30	7	The author team may wish to consider if further qualification of the word "mostly" here would be appropriate. (Katharine Mach, IPCC WGII TSU)	The sentence has been modified to better reflect the intended message of the authors.
568	51262	22	30	13	30	13	The author team should provide a citation to the specific chapter intended here (Chapter 2 of the special report?). (Katharine Mach, IPCC WGII TSU)	Well noted and modified
569	46194	22	30	14	0	0	Which is the most accurate number - 2.4% or 4.9%? Why the discrepancy? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well noted. However, the sentence was deleted to help summarize the the section since it was longer than the required number of pages.
570	40123	22	30	14	30	14	text in brackets does not make sense (Peter Burt, University of Greenwich)	Well noted. However, the sentence was deleted to help summarize the the section since it was longer than the required number of pages.
571	46195	22	30	18	0	0	What is meant by lose \$100 billion a year? Where are the losses and where does the money go? Is it all health costs? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well noted. However, the sentence was deleted to help summarize the the section since it was longer than the required number of pages. The \$100 billion was related to health and other indirect costs like days taken off work when one is unwell.
572	46196	22	30	21	0	0	I think there should be a definition of climate-sensitive disease. What makes malaria, diarrhea, and malnutrition sensitive to climate and are there other diseases that are currently relatively minor that could intensify due to climate change? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well, noted but it is expected that basic health definitions should be in chapter 11 the chapter on health. This word is no longer in the section since the sentence had to be rephrased to shorten the section as required.
573	51263	22	30	22	30	24	It would be helpful to clarify if these statistics pertain to Africa alone or to the world as a whole. (Katharine Mach, IPCC WGII TSU)	Well noted and clarified
574	40124	22	30	29	30	29	change 'also are' to 'are also' (Peter Burt, University of Greenwich)	Well noted. However, the sentence was deleted to help summarize the section to improve clarity
575	46197	22	30	36	0	0	What will the table include on gender, climate change, and health linkages? I believe there should be an education component. Education is directly linked to health. How much time is taken away from education opportunities due to the need to spend more time finding resources in a world of climate change? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well noted but we could not include the table since the information needed is not available in the literature reviewed
576	46198	22	30	36	0	0	I think there should be emphasis on women's and children's health, but I think men's health should be addressed as to why they are not as susceptible to certain diseases and in which ways they are more susceptible disease. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well noted but this is beyond the scope of this section.
577	51264	22	30	36	30	43	If inserted, these tables should not lengthen the section overall. (Katharine Mach, IPCC WGII TSU)	The table will not be inserted
578	46199	22	30	42	0	43	This could have a greater impact as a graph as opposed to a table. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Neither a table or graph could be inserted since the required information was not available in literature at the time of completion of the SOD
579	46913	22	30	45	30	51	Dam reservoirs also create more habitat for the snails and mosquitoes that carry malaria, dengue fever and schistosomiasis, leading to an increase in the number of cases of these diseases. For instance, urinary schistosomiasis rates near the Volta River in Ghana has estimated to be around 10%, while urinary schistosomiasis rates near the Volta Reservoir has been as high as 90%. Intestinal schistosomiasis rates on the lower Senegal River went from 0% to 25-82% after the Diama Dam was built. (Source: Silenced Rivers: The Ecology and Politics of Large Dams, 2001, Patrick McCully, Zed Books, London.) (Katy Yan, International Rivers)	There is no mention of China in the indicated section. Perhaps this is referring to the mention of China in lines 7-9 page 33. This has been modified to better reflect the intended information.
580	46200	22	30	48	0	49	Why do women agricultural workers bear the brunt of the disease burden? There should be more on this explaining that women farmers make up the majority of African farmers, the feminization of agriculture, and the consequences (for example health, economic opportunity, education, etc.). (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you for the observation. However, this information has been explained in earlier chapters dealing with agriculture. The limited space for this section on health in Africa is emphasizing the literature that women are mostly affected.
581	48616	22	31	1	0	0	Do you know how our projections of the future will change in the future? You mean "projections of the future", don't you? (Dáithí Stone, University of Cape Town)	It is not very clear, what clarification is required but projections in the literature reviewed suggest increases in the magnitude and the extent of the impacts.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
582	40125	22	31	14	31	15	how? (Peter Burt, University of Greenwich)	The relation between cholera and the rainy season is clarified in the paragraph. Outbreaks are more frequent around the rainy season.
583	40126	22	31	15	31	15	second 'n' of Nino should be an enye. (Peter Burt, University of Greenwich)	Well noted and modified
584	48617	22	31	16	31	21	Can the rainfall event be linked to anthropogenic climate change? If not then this is a red herring within an "Impacts" section. (Dáithí Stone, University of Cape Town)	The wording has been modified to clarify the that the rainfall event cannot be linked directly to climate change
585	41934	22	31	18	31	19	After the sentence, a mention may be useful of the specific case in contexts where traditional drinking water facilities are dug wells. (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	This is a very important comment but such information is expected in the chapters on water and the rural areas.
586	40127	22	31	20	31	20	change 'resource' to 'resources' (Peter Burt, University of Greenwich)	Well noted. This has been changed
587	40128	22	31	20	31	20	insert 'a' before 'high' (Peter Burt, University of Greenwich)	Well noted and inserted.
588	40129	22	31	21	31	21	references required (Peter Burt, University of Greenwich)	reference added
589	46201	22	31	23	0	0	Define difference between undernutrition and malnutrition. Why is it that there is a project 23% increase in undernutrition, but malnutrition will be lessened be increased economic activity and accessibility? Needs more context. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The section has been revised to clarify and make less ambiguous
590	51265	22	31	25	31	25	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The language has been modified and the term likely dropped.
591	40130	22	31	28	31	28	change 'Al' to 'al' (Peter Burt, University of Greenwich)	The change has been effected
592	42823	22	31	31	0	0	The section refers to potential impacts of climate change on rift valley fever. What about dengue and yellow fever (similarly transmitted by Aedes)? (Sofia Bettencourt, World Bank)	There is not much relevant literature on these for Africa
593	52290	22	31	37	0	0	After the reference Alonso et al, 2011, there is a question mark; it should be deleted. In addition, it would be good to add another reference for illustrating this purpose and I suggest you the reference Caminade et al, 2011 (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Well noted and deletion effected
594	40131	22	31	37	31	37	odd referencing style (Peter Burt, University of Greenwich)	Noted and modified
595	40132	22	31	37	31	38	references required (Peter Burt, University of Greenwich)	Section modified and references included
596	48618	22	31	37	31	38	"Will" is only appropriate if you are certain that other factors, like the introduction of a univerrally-administered vaccine, will never ever happen. (Dáithí Stone, University of Cape Town)	Section modified to reflect the appropriate meaning
597	39300	22	31	39	0	0	The reference to Gething needs correcting. The year was 2010 and the journal Nature. I suggest this group of articles should be teased out a bit; several of the articles are reviews that do not base their pronouncements on data, others (e.g. Gething) play down the significance of climate in highland transmission. It is worth noting that the Gething article includes four of the foremost specialists in malaria epidemiology whereas others, such as Patz, are non-scientists and political activists. (PAUL REITER, INSTITUT PASTEUR)	Section modified
598	40133	22	31	39	31	39	insert space between number and units (Peter Burt, University of Greenwich)	Well noted and change effected
599	41340	22	31	42	31	51	As pointed out in the comments for Chapter 11, epidemics of malaria in the East African highlands in the 1990s have often been associated with climate variability, particularly the El-Niño-Southern Oscillation (ENSO). However, there are other factors associated with malaria risk and there is increased interest in the influences of the Indian Ocean Dipole (IOD), a climate mode of coupled ocean-atmosphere variability, on East African rainfall. There are some studies reporting the association between malaria incidence and IOD there and suggesting that IOD should be considered as the more appropriate index to decipher the signature of climate changes in the resurgence of malaria in the African highlands in the 1990s. (Hashizume M, Terao T, Minakawa N. Indian Ocean Dipole and malaria risk in the highlands of western Kenya. Proc Natl Acad Sci U S A. 2009;106:1857–1862.; Chaves LF, Satake A, Hashizume M, Minakawa N. Indian Ocean Dipole and rainfall drive a Moran effect in East Africa malaria transmission. J Infect Dis. 2012;205:1885–1891.; Hashizume M, Chaves LF, Minakawa N. Indian Ocean Dipole drives malaria resurgence in East African highlands. Sci. Rep. 2012;2:269 doi:10.1038/srep00269.; Chaves LF, Hashizume M, Satake A, Minakawa N. Regime shifts and heterogeneous trends in malaria time series from Western Kenya Highlands. Parasitology 2012;139:14–25.) (Masahiro Hashizume, Institute of Tropical Medicine, Nagasaki University)	The section on malaria has been modified to improve clarity and make it more concise
600	52291	22	31	46	0	48	Instead of writing "Caminade 2011", please write add "Caminade et al, 2011" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Noted and reference updated
601	38905	22	31	46	31	46	In the reference list: Caminade, 2011 should be Caminade et al., 2011 (Cyril Caminade, University of Liverpool)	Noted and reference updated
602	38906	22	31	48	31	48	In the reference list: Caminade, 2011 should be Caminade et al., 2011 (Cyril Caminade, University of Liverpool)	Noted and reference updated
603	38907	22	31	48	31	49	"One reason for different projections could be due to use of GCMs versus REMO models..." This sentence does not make any sense. REMO is a Regional Climate Model amongst others. I guess Volker Ermert meant that the difference arises from the different employed climate models (especially when driving an impact model with a GCM vs a RCM at higher spatial resolution. Replace by "One reason for different projections could be due to use of different climate models in driving the impact model" or replace "REMO" by "RCM (REMO)" (Cyril Caminade, University of Liverpool)	Well noted and updated
604	38908	22	31	49	31	49	Reference mistake: "Ermert et al., 2012" should be "Ermert et al., 2011". (Cyril Caminade, University of Liverpool)	Noted and modified
605	46202	22	31	50	0	51	Why aren't those other characteristics taken into account? Important to see what would happen without adaption and the consequences with adaption. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you. Discussion on adaptation are in the section on adaptation.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
606	52292	22	31	51	0	0	The references "Saugeon et al., 2009; Kelly Hope et al., 2009; Omumbo et al., 2011" are missing at the end of the chapter; they should be added at the list of references. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Noted and the reference list has been updated.
607	46203	22	32	1	0	0	What are the consequences of leishmaniasis with HIV? What are the social and economic impacts? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Concerns noted as important ones but are beyond the scope of this section.
608	39301	22	32	1	0	34	What a joy to read this. If only the authors of the Human Health chapter were able to write such a sensible review. Also, glad to see that they include leishmaniasis, RVF, CHIK etc., not the usual dengue and malaria of the activists! (PAUL REITER, INSTITUT PASTEUR)	Thank you for your observation
609	40134	22	32	3	32	4	has this change been matched elsewhere? (Peter Burt, University of Greenwich)	Thank you for the observation. However, discussion of changes in leishmaniasis other than in Africa is beyond the scope of this section. Please, refer to other regional chapters.
610	40135	22	32	8	32	8	genus/species names should be in italics (Peter Burt, University of Greenwich)	Well noted and modified
611	40136	22	32	9	32	9	genus/species names should be in italics (Peter Burt, University of Greenwich)	Well noted but section modified and specie name deleted
612	46204	22	32	10	0	0	If leishmaniasis spreads through rodent host and vector, need more context as to why the rodent hosts are affected by climate change. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Well noted. However, such detailed information is beyond the scope of this chapter which aims to give a regional context. Detail on specific disease entities the mechanisms on how they may cause disease where appropriate is discussed on the chapter on health. Further, literature reviewed did not have the information.
613	52293	22	32	22	0	0	With regards to the reference "Climate Change Adaptation in Africa Programme Annual Report, 2010-2011", please visit the ACCA project implemented in Tunisia and dealing with Leishmaniasis where some peer review papers can be found (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Well noted and updated
614	52294	22	32	23	0	0	The date after the reference "Interim Technical Report no.5 23, 200" is incomplete; please find the correct year. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Well noted and modified
615	40137	22	32	23	32	23	reference incomplete (Peter Burt, University of Greenwich)	Well noted completed
616	52295	22	32	27	0	36	This paragraph is dealing with Rift valley fever... You can find peer review papers in the Revue Scientifique et Technique de l'Office International des Epizooties, (2008), vol. 27, n°2; special issue focused on climate change and animal health. In addition, with regards to RVF and rainfall, obviously RVF event are associated with heavy rainfall; for Easter Africa, these heavy rainfall are linked to El Niño event, but for Southern Africa, these heavy rainfall are linked to La Niña event... The reference "Chavalier, 2011" should be added to the list of references that is at the end of the document; please also correct it the good name is "Chevalier, 2011" instead of "Chavalier, 2011" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	References modified and the information updated as appropriate
617	48619	22	32	27	32	28	Perhaps it could, but according to what is presented here it could not too, or it could decrease the incidence and spread. (Dáithí Stone, University of Cape Town)	Section modified to express the appropriate meaning
618	38909	22	32	31	32	31	(Chavalier, 2011) is not listed in the references at the end of the document. I guess you meant Chevalier et al., 2008. Need to check this is the correct reference. (Cyril Caminade, University of Liverpool)	References updated
619	40138	22	32	34	32	34	genus names should be in italics (Peter Burt, University of Greenwich)	genus names changed to italics
620	40139	22	32	36	32	36	genus name should be in italics (Peter Burt, University of Greenwich)	genus names changed to italics
621	39302	22	32	39	0	0	Should include human diseases. Perhaps mention viral diseases such as CCHF, TBE plus tick-borne typhus etc. (PAUL REITER, INSTITUT PASTEUR)	This is mentioned further down in the paragraph
622	46205	22	32	42	0	45	Better description of how climate change affects vector - need a similar structure for rodents and leishmaniasis disease. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you
623	40140	22	32	42	32	42	ECF = ? (Peter Burt, University of Greenwich)	This is East Coast Fever and had been expanded in the text.
624	40141	22	32	46	32	46	reference style wrong (Peter Burt, University of Greenwich)	Thank you but this is the recommended style. Please, clarify further if comment misunderstood
625	40142	22	32	48	32	48	genus name should be in italics (Peter Burt, University of Greenwich)	Modified as appropriate
626	46914	22	32	51	33	7	See comment above for other case studies. (Katy Yan, International Rivers)	Thank you. Sorry if it was not clear but this is not a case study. Your comments will be taken up with the sections on case studies.
627	39303	22	32	54	0	0	The CHIK paper by Epstein does not deserve attention. Not only does it invent nonsense about "warming in the Indian Ocean" contributing to the CHIK epidemics but the whole point about the epidemics was that they were carried to naïve populations by travelling humans. I suggest there should be more mention of the factors that underlie the globalization of diseases like dengue and chikungunya: global transport (eg the tyre trade and albopictus) and global travel. Indeed, the albopictus story is an outstanding example: albo exported to USA from Japan, then from USA to Europe. CHIK emerging from African forest, epidemics in Mombassa and Lamu, virus transported in travellers to La Reunion and Mauritius, then to India (epidemic of 11,000,000) and then to Italy, where the recently-arrived albopictus transmits it in a small town (thankfully) outbreak. Nothing to do with the heated Indian Ocean but everything to do with the future of vector-borne diseases. Also worth mentioning that a small mutation of the virus greatly increased the competence of albo. (PAUL REITER, INSTITUT PASTEUR)	This section has been deleted when summarizing to make the SOI concise

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
628	52296	22	32	54	0	0	There is a full stop before the reference Epstein 2007 “who returned home with this illness. (Epstein 2007). Water resources development”; please, this should be deleted. Between “Epstein, 2007”, a comma should be added. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Thank you. The appropriate update has been done.
629	52297	22	33	6	0	0	We can wonder what about this sentence dealing with China in this Chapter 22 dealing with Africa... (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The section has been modified to reflect the key messages needed.
630	46206	22	33	6	0	7	Why is information on Chinese host snail relevant? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The section has been modified to reflect the key messages needed.
631	40143	22	33	9	33	10	hardly a variety of insectivores! (Peter Burt, University of Greenwich)	a 'variety' has been modified to 'some'
632	39304	22	33	10	0	0	There is some excellent work on climate and hanta viruses in Europe, particularly from Liers in Belgium and Henttonen in Finland. The relation between climate (weather) and masting of oak trees is fascinating and demonstrates the importance of ecological circumstances in transmission dynamics. (PAUL REITER, INSTITUT PASTEUR)	Thank you for the good information. However, this is beyond the scope of the chapter and will be better place in other regional chapters like the chapter on Europe.
633	46207	22	33	14	0	17	Is there more information on HIV/AIDS and climate change? It is such a prevalent disease and I feel other intensified diseases will cause an even larger health risk for so many with weakened immune systems? Maybe the research isn't there, but I feel HIV/AIDS deserves more than just four lines of information. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Yes HIV is a disease of public health importance but more research is needed to update knowledge in Africa as may be relevant for this chapter.
634	46208	22	33	19	0	20	Need more information on human and animal trypanosomiasis. There is no context for consequences of reduction, although any reduction in a vector seems like a positive consequence. However, based on earlier information in the study, if the tsetse fly is to follow the trends of other pests it will eventually move somewhere else and therefore a problem is only just moving to a new location. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you for your comment. Indeed the current literature on this does not provide much information. This should be noted as one of the areas where more research is needed and will be reviewed for the next IPCC review.
635	40144	22	33	19	33	19	genus/species names should be in italics (Peter Burt, University of Greenwich)	Well noted and modified
636	40146	22	33	19	33	20	why? (Peter Burt, University of Greenwich)	Clarified in text
637	39305	22	33	20	0	0	At last! Someone mentions trypanosomiasis! Why not include a few other pathogens. Lassa: a good climate relationship. Plague? Oncho? Schisto? Buruli ulcer? But one item that is missing and should definitely be included: the stability of malaria transmission is the most important factor in transmission. In regions where transmission is stable, i.e. most people get several infectious bites per year, it is hard to see how increasing temperatures will increase infection rate (a glass that is full of water can't be filled any more!). So the regions where transmission is unstable are the ones to watch. The classic story of malaria in Ceylon (Sri Lanka) in the 1920s is illustrative (see Reiter, Malaria Journal 2008, 7(Suppl 1):S3 (11 December 2008) (PAUL REITER, INSTITUT PASTEUR)	Thank you for the rich information. However, discussion on the stability of transmission is beyond the scope of this chapter.
638	40145	22	33	20	33	20	delete 'l' (Peter Burt, University of Greenwich)	Thank you. Deleted.
639	51266	22	33	31	33	33	The author team should specify the relevant climate/socio-economic scenario here. Additionally, the missing reference must be supplied. (Katharine Mach, IPCC WGII TSU)	This section has been deleted when summarizing to make the SOD concise
640	36144	22	33	32	33	32	In the sentence, ".....malnourished children in sub-Saharan Africa could increase by 24 million.....". It is important that such projections be based on reliable surveys and studies in order to make it appear alarmist and purely relying on gray/grey sources of literature. Therefore, it is important to verify the WFP source of information. (Richard Anyah, University of Connecticut)	This section has been deleted when summarizing to make the SOD concise
641	46209	22	33	33	0	0	Is there another source besides the World Food Program? It seems as if someone has already questioned the legitimacy of the organization? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been deleted when summarizing to make the SOD concise
642	40147	22	33	33	33	33	odd reference style (Peter Burt, University of Greenwich)	This section has been deleted when summarizing to make the SOD concise
643	51267	22	33	37	33	37	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Language modified to reflect the appropriate meaning
644	40148	22	33	40	33	41	This is important! Surely one could speculate on the basis of studies elsewhere, drawing on problems/issues with environmental legislation and projected vehicle emissions. If this cannot be done specifically some comment regarding these ideas could be made. (Peter Burt, University of Greenwich)	Thank you for the comments. However, this is the information that could be summarized from the available literature
645	51268	22	33	43	33	44	If material is added for these topics, the author team must ensure that the section remains concise. (Katharine Mach, IPCC WGII TSU)	Thank you.
646	46210	22	33	45	0	0	There is mention of insufficient climate and emissions data for Africa, but are there any projections as to possible air pollutants caused by increased industrialization in Africa and therefore increased use of non-renewable energy? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you but because of insufficient data consequently there is also insufficient literature on projections.
647	36734	22	33	47	33	54	Move to the adaptation section. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Thank you. Moved to the adaptation section
648	41789	22	34	3	0	0	Section 22.3.3.3 Industry - As the tourism section is still forthcoming for this region, that CLAs might find the following critical reviews of the international tourism sector useful in the SOD preparation: Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232 and the much more comprehensive book that this summary review is based on Scott, D., Gössling, S., Hall, C.M. (2012) Climate Change and Tourism: Impacts, Adaptation and Mitigation. London: Routledge. (Daniel Scott, University of Waterloo)	This section has been removed.
649	42824	22	34	5	0	0	Please include infrastructure and housing (including public infrastructure) - these are key sectors that are increasingly vulnerable to a combination of climate change and non-climate drivers (such as poor land use planning and watershed degradation) (Sofia Bettencourt, World Bank)	The non climate drivers have been discussed in several sections of the chapter.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
650	35912	22	34	8	35	37	Natural disasters???? gas explosion from lakes (like the 1986 lake Nyos gas explosion in Cameroon and volcanic eruptions like the 2002 eruption in Goma DRC? (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	To be considered in the final draft
651	51269	22	34	10	0	0	Section 22.3.4.1. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections. Additionally, the author team should consider and cross-reference the findings of chapter 12 as appropriate. (Katharine Mach, IPCC WGII TSU)	Section has been revised, reduced in length and tightened. Cross reference to Chapter 12 included
652	54846	22	34	10	0	0	To synthesize material and reduce text, the author team may wish to integrate sub sections on agriculture, health with the discussions under key sectors. (Monalisa Chatterjee, IPCC WGII TSU)	This has been taken care of
653	44313	22	34	10	34	10	Needs an introduction to explain how this section fits in with the overall chapter. (Emma Archer van Garderen, CSIR)	This has been taken care of within the space limits
654	48621	22	34	12	34	22	This is about human security generally, which has its own chapter, rather than human security in Africa specifically. (Dáithí Stone, University of Cape Town)	Yes, the section has been reduced to cover Africa relevant aspects only
655	42826	22	34	25	0	0	A very important consideration will be the potential for local conflicts and rising inequality arising from agriculture adaptation. As areas most suitable for particular crops move to higher latitudes, for example, the poorest farmers will tend to be the most affected due to their natural lower mobility and adaptive capacity. This may also exacerbate conflicts with large-scale farmers. (Sofia Bettencourt, World Bank)	The section on maladaptation covers this perspective. Due to length constraints it is not possible to add all types of examples.
656	42947	22	34	25	0	0	Much of this text could arguably go into the impacts and vulnerabilities section earlier (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	This has been taken care of. Parts on Agriculture (food security in particular), health etc. have been deleted and suggested for consideration in the respective sections above.
657	44314	22	34	25	35	10	In a number of places, needs to be linked to what was further said on this subject earlier in the chapter. (Emma Archer van Garderen, CSIR)	This has been taken care of within the space limits
658	48623	22	34	25	35	10	This subsection under the "human security" section is not about human security. It mostly focuses on vulnerability with respect to food security (dealt with earlier), and occasionally on vulnerability of food security to climate. Food security may be related to human security, but the case is never made here. (Dáithí Stone, University of Cape Town)	Indeed, human security covers a very broad range of issues including, but not limited to economic security, food security, health security, environmental security, personal security, community security and political security. It is a balancing act to adequately address this within the available space limits. On the one hand, the section might appear to be incomplete as it does not cover all aspects of human security, on the other hand, we must avoid any sort of repetition. In the SOD we have thus tried to address this complex multifacetedness-within the available space limits - by referring to the general Human Security Chapter (Chapter 12), covering aspects of agriculture, health in the vulnerability section above and concentrating on economic security, violent conflicts and migration in the human security section.
659	48622	22	34	28	34	30	My parsing of this sentence is that it is important that we make sure that the climate changes you specify (whether or not they occur) must have a >66% chance of reducing yields. (Dáithí Stone, University of Cape Town)	sentence has been deleted in this section
660	51270	22	34	29	34	29	The author team may wish to consider if it would be appropriate to use a more conditional framing here for the described "declining precipitation." Additionally, if being used per the uncertainties guidance for authors, "likely" should be italicized; casual usage should be avoided. (Katharine Mach, IPCC WGII TSU)	sentence has been deleted in this section to reduce length
661	42825	22	34	35	34	38	You may want to add to this sentence the fact that the poorest AND most dependent on agriculture as their main source of income are particularly vulnerable since a large proportion of their safety net is reliant on a sector that is highly climate-sensitive (Sofia Bettencourt, World Bank)	sentence has been deleted in this section to reduce length
662	40149	22	34	53	35	10	This draws heavily on Ghana. Can the findings from these studies be extrapolated to other countries in Africa? (Peter Burt, University of Greenwich)	True.
663	46791	22	35	0	0	0	The section on 'Violent Conflict' should be clearer about the linkages between warmer temperatures, and other macro- or micro-climatic features and changes in human behavior so that people become violent. In presenting such an analysis, triggers and causes should be differentiated. The use of Somalia as an example is suspect, and only part of the former Republic is at war. Somaliland is a peace, and Puntland, aside from the occasional sea pirates, is largely at peace, too. Perhaps temperature no longer matters in those places in those formerly very violent places? I'm surprised that the example of Darfur is not raised, as this was even identified as a climate change conflict by Ban Ki-Moon, though hotly disputed (pun intended) by Kevane and Grey in their 2008 Environmental Research Letters article. (A. Peter Castro, Maxwell School, Syracuse University)	The chapter on human security goes into minute details of human security issues. In this chapter we briefly and broadly discuss the topic. We do not provide any specific examples.
664	46211	22	35	11	0	0	There is a lot of information presented in the section on agriculture and food security and I feel it would be helpful to have a table that contained the countries cited in the section and the specific impacts on that countries food security, economic security, health impacts, etc. It would be beneficial to summarize what was said in a table and add additional data from other countries as well. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This has been taken care of by tightening the section and reducing it in length
665	46212	22	35	12	0	0	Although there is a lack of correlation between environmental factors and conflict, possible refugees due to climate change should be taken into account. Immigration is a very common source of conflict and greatly affects the "political and economic characteristics of states." (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Addressed in migration section below.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
666	52298	22	35	13	0	17	This paragraph dealing with health is too short... is it relevant to maintain it? (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Health section has been deleted here is dealt with in the vulnerabilities and impacts section
667	41935	22	35	15	35	17	More can be said under Health to keep a certain harmony with the other similar subtitles (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	Health section has been deleted here is dealt with in the vulnerabilities and impacts section
668	44315	22	35	20	36	12	No links to discussions of migration and forced migration later in the chapter? (Emma Archer van Garderen, CSIR)	The introductory statement of the SOD mentions the interrelatedness of the various aspects of human security, including conflict and migration. Linkages between conflict and migration in general are dealt with in Chapter 12, to which reference is made.
669	46213	22	35	35	0	0	Who is the source that says that there is a strong correlation between civil war and higher temperatures? Why is this? And what is an example? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	section has been rephrased
670	36145	22	35	36	35	38	It is true climate change is likely to be a threat-multiplier in Africa, especially the perennially conflict-prone regions. However, the 54% projected increase in armed conflicts should be based on plausible scenarios that take into account the multi-dimensions of conflicts in Africa such as has been witnessed the Great Lakes region ( DR Congo, Northern Uganda, the Sudans, etc) and western Africa (Richard Anyah, University of Connecticut)	These figures are based on Burke (2009b) explaining the methods for the findings. The section highlights, that it remains disputed whether the changing climate increases the risk of civil war in Africa.
671	40150	22	35	43	35	43	delete 'as' (Peter Burt, University of Greenwich)	Done
672	40151	22	35	48	35	48	delete 'namely' (Peter Burt, University of Greenwich)	done
673	40152	22	35	48	35	48	insert , after 'deforestation' (Peter Burt, University of Greenwich)	Done
674	40153	22	35	49	35	49	change 'for' for 'of' (Peter Burt, University of Greenwich)	Done
675	48624	22	35	51	36	12	This paragraph is beautifully encompassing yet succinct, and I to the best of my knowledge summarises the state of understanding (not much, but certainly being discussed and examined) perfectly. The previous paragraph could be omitted because I think this one says everything important that the previous one says, and more. (Dáithí Stone, University of Cape Town)	Unfortunately this paragraph had to go as it was not Africa specific enough
676	51271	22	36	15	0	0	Section 22.3.4.2. In further development of this section, the author team may wish to consider and cross-reference chapter 8. (Katharine Mach, IPCC WGII TSU)	Good point and cross-referencing has been done
677	48625	22	36	25	36	26	"Likely"? Is this because urbanisation has largely happened already elsewhere? (Dáithí Stone, University of Cape Town)	This has been taken care of by changing the wording of the sentence
678	51272	22	36	25	36	53	"likely" on lines 25 and 53 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This has been taken care of by changing the wording of the sentence
679	46214	22	36	44	0	0	The new Global Food Security Index from the Economist Intelligence Unit could provide more insight and more recent information on the status of food security in Southern Africa. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	New text was added from the more recent proposed reference
680	41936	22	36	46	36	48	Here ,once more, maybe a mention of secondary cities may complete the figure (Reference: Cissé et al 2010). (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	This has been taken care of by cross-referencing to chapter 8 (urban areas)
681	44895	22	37	0	38	0	The focus of this section on 'integrated adaptation-mitigation activities' for policy-making should consider the importance of grassroots based practices from secular knowledge that despite being still in many cases insufficient, are highly adaptive, resilient and widely distributive in a spontaneous manner. These self-organised practices just need to be acknowledged and maximised through official recognition and support. (Celine Veríssimo, University College London)	A sentence was added to take into account the additional information provided in this comment.
682	52299	22	37	6	0	35	All references are followed by the number of pages... Please, this should be corrected (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This has been taken care of
683	44894	22	37	12	0	19	Yet, since most African informal settlements cannot rely on local governments for providing infrastructures the environmental management of the neighbourhoods has been collectively improvised spontaneously. This means that informal settlements may have in some cases (such as the case of Dondo, Mozambique – Chapter 7 page 34-35) a wide distributive adaptive and resilient capacity that spontaneously adapts the urban environment to withstand crisis events. (Celine Veríssimo, University College London)	This was cross-referenced to the referred section
684	42827	22	37	32	37	35	It is no so much the lack of risk reduction strategies that is the major constraint but rather the lack of local contingency funding directed at prevention (rather than response). The reasons are multiple, and have to do with poor fiscal decentralization, and the much stronger incentives (for decision makers) to respond rather than to prevent. (Sofia Bettencourt, World Bank)	The sentence has been edited to focus more on the structural factors that intensify vulnerability, particularly local governments poor capacities and resources.
685	42948	22	37	35	0	0	There is a lot of good information here, but this could be shortened considerably by cross-referencing to the WGII adaptation chapters and relevant sector chapters such as food security, health etc. And by reducing repetition (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Cross-referenced to chapters of interest were added in the text
686	51273	22	37	38	0	0	Section 22.4. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections. Each subsection could be reduced by 50%. (Katharine Mach, IPCC WGII TSU)	All sections have been reduced in length.
687	54847	22	37	38	0	0	The author team should synthesize this section and present a summary of all findings. Moreover, to reduce overlaps with adaptation chapters the author team may wish to remove some of the general discussions on adaptation. (Monalisa Chatterjee, IPCC WGII TSU)	general discussions have been removed.
688	36735	22	37	38	38	11	Section 22.4 Adaptation in Africa needs to be streamlined and the information should be more concrete and specific. The current text is overall too general. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Text has been streamlined and made more specific.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
689	48632	22	37	38	70	30	I'm not really qualified to comment on this area, but at least I can say it reads quite well to me. (Dáithí Stone, University of Cape Town)	No response necessary
690	48659	22	37	38	70	30	I think this is the longest section in the chapter and yet I don't think it includes any figures. I'm not sure that the subject is one that lends itself to figures, but it might help if you could come up with a few if possible. (Dáithí Stone, University of Cape Town)	Agreed. Additional figures have been considered and a figure on ecosystem-based adaptation has been added, as well as an extra table.
691	40154	22	37	52	37	52	change 'like' to 'such as' (Peter Burt, University of Greenwich)	Change has been made.
692	46215	22	37	54	0	0	Define "low-regrets adaptation." What does this look like? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This term should be defined in the glossary. There is insufficient space in the chapter to repeat glossary definitions.
693	46792	22	38	0	0	0	This section needs to clarify how, where, and what success and limitations have people adapted without external support to climate change. The issue of local or indigenous knowledge systems as sustainable resource management has been highlighted for 30-plus years by analysts and activists. The report authors may want to look at a recently published volume: Climate Change and Threatened Communities, edited by A. P. Castro, D. Taylor, and D. W. Brokensha (Practical Action, 2012). (A. Peter Castro, Maxwell School, Syracuse University)	This point has been clarified and further substantiated in the section, and the new publication mentioned has been reviewed and included as a reference for this point.
694	40155	22	38	1	70	30	large parts of this text are noted as being incomplete or still requiring editing. Consequently, they have not been reviewed. (Peter Burt, University of Greenwich)	Sections have been completed.
695	43396	22	38	7	38	0	I suggest addition of the following: It is worthy to note that most of the approved activities for climate change adaptation can contribute significantly to mitigation. This is therefore a potential area for a win-win situation as long as the expected synergies are capitalized on (Jalloh and Roy-Macauley, 2011). Citation:Jalloh, A., Roy-Macauley, H., 2011. Climate change research and development orientation framework: A CORAF/WECARD strategy for guiding climate change research and development in West and Central Africa. Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/West and Central African Council for Agricultural Research and Development (CORAF/WECARD). CORAF/WECARD, Dakar, Senegal. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	Agree, this point has been added to section 22.6.1 on integrated adaptation-mitigation responses
696	44316	22	38	9	38	12	Not clear how this rough section will fit in? (Emma Archer van Garderen, CSIR)	Section has been deleted.
697	51274	22	38	14	0	0	Section 22.4.1. Revision of this section the overall length does not increase, especially with inclusion of any additional material as noted with placeholders. Additionally, the author team may wish to consider if the placeholder table is needed given section 22.4.2.1.2. (Katharine Mach, IPCC WGII TSU)	Length has been reduced. Table on NAPAs has been developed to highlight needs and gaps.
698	44317	22	38	14	38	30	Need to link this to the previous multiple stressors section, when written. (Emma Archer van Garderen, CSIR)	Agree, section has been deleted.
699	52300	22	38	22	0	0	The reference "O'Brien et al., 2004" is incomplete; please correct it as "O'Brien et al, 2004" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Corrected
700	46216	22	38	32	0	0	Table describing NAPAs priority actions is vital to supporting information in the paragraph. No table is included in the figures or tables documents. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The idea for the table has been dropped due to insufficient space.
701	51275	22	38	36	38	36	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Text has been deleted.
702	45464	22	38	44	38	44	Suggest also to add citation 'Lwasa 2013', and add the following reference to the bibliography: Lwasa, Shuaib. 2013. "Bridging adaptation to climate change across city scales in Kampala". Local Environment: The International Journal of Justice and Sustainability. Forthcoming. (Rafael Tuts, United Nations Human Settlements Programme)	Citation has been added.
703	48626	22	38	48	0	0	Realised impacts or projected impacts? (Dáithí Stone, University of Cape Town)	Realised impacts, wording has been changed.
704	36146	22	39	1	39	9	It should be noted that there is still a big challenge most African countries and regions due to the uncontrolled ( quality-proofing) and flow of climate (change) information and products employed by many interest groups to design adaptation strategies. There are a myriad non-governmental and community based organizations that play critical role in helping local communities respond to the vagaries of climate, but there is a need for coordination between climate information producers ( regional climate centers and national meteorological and hydrological/agrometeorological services) and all the groups involved in different adaptation programs. Otherwise, cases where snapshots of data are used to design adaptation strategies could easily lead to maladaptation. (Richard Anyah, University of Connecticut)	This valid point has been included in the section on maladaptation risks.
705	43397	22	39	4	0	0	Add this citation: (Jalloh et al. 2011)- citation: Jalloh, A., Sarr, B., Roy-Macauley, H., and Sereme P. 2011. Review of climate in West and Central Africa to inform farming systems research and development in the sub humid and semi arid agroecologies of the region. Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/West and Central African Council for Agricultural Research and Development (CORAF/WECARD). CORAF/WECARD, Dakar, Senegal. (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	This citation has been added.
706	43398	22	39	7	0	0	Suggest you add this: National Meteorological Services (NMS) in WCA have key roles to play in providing meteorological information for decision-making and for planning adaptation and mitigation strategies. Unfortunately, some of these are relatively weak in terms of human resource (Jalloh et al. 2011 - same as above) (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	Thank you, this valid point was added to the text in the initial revision of the chapter, but has unfortunately been deleted in the necessary process of condensing the material. The citation has however been used to substantiate related points.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
707	42828	22	39	7	39	9	Another critical problem is the institutional fragmentation between hydrological services, meteorological services, disaster risk management agencies and institutions responsible for climate change adaptation. In most African countries, these services are sited in different Ministries, making inter-sectoral coordination in the provision of effective climate information inherently complex (see Bettencourt, S. 2011 "Making Climate Services More Effective" WMO Bulletin, Vol. 60(2) 2011, at <a href="http://www.wmo.int/pages/publications/bulletin_en/archive/60_2_en/60_2_bettencourt_en.html">http://www.wmo.int/pages/publications/bulletin_en/archive/60_2_en/60_2_bettencourt_en.html</a> (Sofia Bettencourt, World Bank))	The author team agrees with this point, and it has been added to the section on institutional factors and adaptation.
708	43399	22	39	9	0	0	Suggest you add this: Meteorological data is not readily available to the public including researchers. There is an increasing tendency for the unregulated sale of data even among public institutions. Relevant discussions aimed at improving access to data need to be held, involving all major stakeholders (Jalloh et al. 2011). (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	This point has been added to the section dealing with knowledge issues and adaptation.
709	44318	22	39	10	39	32	Rather fragmented - needs careful rewriting and editing. Very difficult to follow, even allowing for incomplete text. (Emma Archer van Garderen, CSIR)	This section has been re-written and edited.
710	43400	22	39	15	0	0	suggest adding: There is therefore need for the development and use of appropriate technologies and best bet practices, including innovations to meet challenges like shorter growing seasons, extreme temperatures, droughts, floods, in order to enable farmers of WCA to adapt and become less vulnerable to the effects of the changing climate (Jalloh and Roy-Macaulay, 2011). (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	This point has been added, supported by the suggested reference as well as other references reviewed.
711	46217	22	39	17	0	0	Very necessary component, especially after stating that the largest obstacle is the lack of supply and demand of climate change information. Is there a meteorology or climatology agency in Africa? Is there any data from weather recorders on the ground in Africa - for example people who track daily temperatures or precipitation? There is an extensive network of weather observers in the U.S. - what are the barriers to implementing a similar system in African regions? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The text has made it clear that while there are meteorological networks in Africa, these have numerous constraints, as noted in the text. Sections on local and traditional knowledge highlight the role played in observation. There is consequently no need to address this comment.
712	44319	22	39	34	39	36	An introduction would be extremely useful here. (Emma Archer van Garderen, CSIR)	A brief introduction has been provided for this section, which is now numbered 22.4.4.1
713	51276	22	39	48	0	0	Section 22.4.2.1.2. Revision of this section should aim to reduce the length by 50% and tighten assessment accordingly. (Katharine Mach, IPCC WGII TSU)	Length of the section has been reduced and the argument has been tightened.
714	46793	22	40	0	0	0	Two major barriers often exist in terms of national planning: the lack of recognition that frequently exists regarding local customary rights to resources, which are nationalized or privatized; and gender barriers (see Climate Change and Gender Justice, edited by G. Terry (Practical Action, 2009). In addition, many governments need to widen the political space for their citizens, institutions, and local governing bodies to participate in decision-making. (A. Peter Castro, Maxwell School, Syracuse University)	Additional information has been added to the Barriers section, within space limitations. Point on widening the political space has been included in the re-worked decision-making for adaptation section.
715	46218	22	40	4	0	0	Will NAPAs from any of these countries be included in the report? I think it would be beneficial to include an example of what a NAPA looks like. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Format and length of AR5 does not allow for adding a NAPA; additional information has been provided in the Table added on NAPA needs, gaps and priorities
716	42829	22	40	6	40	16	A further constraint of NAPAs was that they did not provide a framework for investment funding. Most NAPAs were spread too thinly across a large number of small projects, and had to be refocused, and re-prioritized to enable donors to fund them. Both NAPAs and National Adaptation Strategies also suffered from being delinked to key economic planning processes such as National Development Plans or national budgets. (Sofia Bettencourt, World Bank)	These points have been added to the section on national adaptation planning.
717	44320	22	40	6	40	16	I'm not sure that all NCCRS may be presented in this way? (Emma Archer van Garderen, CSIR)	This qualification has been added to the section on national adaptation planning.
718	45377	22	40	20	0	30	AAP was/is a good project, but should it really be described in 10 lines in AR5? There are more of these large scale projects (Willem Pieter Pauw, German Development Institute (DIE))	Agree. Revision of this section has resulted in reduction of the focus given to the AAP, and inclusion of additional relevant examples.
719	36747	22	40	29	49	0	22.3.3.1.6 can be deleted. The adaptation can be included in the Adaptation section 22.4 (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Section has been deleted and text moved to section 22.4
720	46219	22	40	32	0	0	Does the AAP incorporate components that address "women, poor people and children" or energy adaption? What makes the AAP better besides a integrated and comprehensive approach? This was initiated in 2008 - what is the 2012 update on the "outputs and outcomes" of the AAP? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The focus on the AAP has been reduced due to the need to include additional relevant examples, and thus space constraints and the need for a balanced assessment preclude this comment being addressed in the report.
721	51277	22	40	34	40	34	The phrase "limited evidence," as calibrated uncertainty language, should be italicized. (Katharine Mach, IPCC WGII TSU)	Corrected.
722	42830	22	40	34	40	37	Recently, however, the Climate Investment Funds have helped fund Pilot Programmes for Climate Resilience (PPCR) in Niger, Zambia and Mozambique. The PPCRs have helped develop a more programmatic approach to adaptation, often helping strengthen national institutions (as it is currently done in Zambia and Mozambique). See <a href="http://www.climateinvestmentfunds.org/cif/ppcr">http://www.climateinvestmentfunds.org/cif/ppcr</a> (Sofia Bettencourt, World Bank)	This point has been incorporated in section 22.4.2.1.2
723	42831	22	40	39	40	40	Zambia has completed the mainstreaming of climate resilient into its Sixth National Development Plan (2011-2015) see <a href="http://www.undp.org.zm/joomla/attachments/119_SNDP_Final_Draft__20_01_2011.pdf?8e2474a80d13c9785641fc2923161380=hpjxfdx">http://www.undp.org.zm/joomla/attachments/119_SNDP_Final_Draft__20_01_2011.pdf?8e2474a80d13c9785641fc2923161380=hpjxfdx</a> (Sofia Bettencourt, World Bank)	This point has been incorporated in section 22.4.2.1.2
724	44321	22	40	39	40	47	A number of other critiques would also be very relevant here. (Emma Archer van Garderen, CSIR)	Additional critiques have been added to elaborate on this point.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
725	46220	22	40	46	0	47	This seems like an odd place to provide this information. It is an interesting point, "integrating climate-adaption into MDGs," but further analysis should be provided and why is it tacked on to the end of a paragraph about lack of funding and an emphasis on commercial farming over subsistence farmers? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been edited and synthesised to address this comment. Further elaboration of the point is not possible given very tight page limits and the need to cut section 22.4 by 75%.
726	42832	22	41	1	41	2	"in Mozambique and Zambia". Zambia is also in the process of finalizing its National Climate Change Response Strategy and ensuing Policy (a new Disaster Act has recently been adopted). Please note that throughout Africa, a major constraint has been that the external pressures to develop CC-specific strategies, policies and legislation are leading to institutional duplication vis-a-vis DRR and other inter-sectoral platforms (e.g. Sustainable Development platforms). This can have the unforeseen impact of fragmenting an already fragile institutional capacity. (Sofia Bettencourt, World Bank)	This point has been added to the synthesis.
727	44322	22	41	1	41	10	I'm not sure that Mozambique is, in fact, the best example here? (Emma Archer van Garderen, CSIR)	This point has been considered and the text adjusted accordingly.
728	43793	22	41	3	41	3	A more recent peer-reviewed publication highlights the institutional constraints and opportunities for mainstreaming climate concerns into development assistance in Mozambique: Sietz, D., Boschütz, M. and Klein, R.JT. (2011: Tab. 2) Mainstreaming climate adaptation into development assistance: rationale, institutional barriers and opportunities in Mozambique. Environ. Sci. Policy 14(4): 493-502. (diana sietz, Wageningen University)	This reference has been incorporated.
729	35913	22	41	22	0	0	Could be important to also discuss for the Congo Basin forest ecosystem which is the second largest in the world (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	This point has been incorporated in the text dealing with ecosystem based adaptation.
730	46221	22	41	24	0	0	What does spatial planning entail? Needs to be more context. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Owing to space constraints for AR5, this kind of background information cannot be added.
731	44323	22	41	24	41	29	This should be cross referenced with the coastal section (Emma Archer van Garderen, CSIR)	Coastal adaptation has now been integrated into section 22.4 and relevant text has been included under spatial planning.
732	46222	22	41	29	0	0	Really interesting point: ecosystem-based adaption is part of development agenda, not just completing a green agenda. What is the hostility towards a "green" agenda? Why can't it be the goal of a green economy through sustainable development, like the Rio+20 goal? Would be interesting to expand more to know what exactly is meant by that statement. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Unfortunately, given the need to cut text in section 22.4 by 75%, this point can not be elaborated on.
733	48627	22	41	33	41	48	Is there any literature to reference here? (Dáithí Stone, University of Cape Town)	The source is Peterson and Holness (2011), as indicated in the text.
734	44324	22	42	11	42	21	Suggest link to earlier observations on multisectoral approaches (Emma Archer van Garderen, CSIR)	This section has been incorporated into the earlier text on multi-sectoral approaches.
735	43794	22	42	12	42	12	The more recent and peer-reviewed literature shows that the lack of inter-institutional coordination and communication is one of the major barriers to mainstreaming climate adaptation in Mozambique (Sietz et al. 2011: Tab. 2). This is a perception of both international and national experts involved in mainstreaming. REFERENCE: Sietz, D., Boschütz, M. and Klein, R.JT. (2011c) Mainstreaming climate adaptation into development assistance: rationale, institutional barriers and opportunities in Mozambique. Environ. Sci. Policy 14(4): 493-502. (diana sietz, Wageningen University)	This point has been clarified in the text and the citation added.
736	46223	22	42	15	0	18	More explanation is needed on why there is a divide between conservation and adaptive strategies? Why are adaption strategies harmful to ecosystems and biodiversity? Shouldn't adaptation strategies be environmentally responsible at the core - isn't that what makes it a climate change adaption strategy? More context is needed. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The text to which this comment refers has been deleted from the chapter, due to extremely tight page limits. Hence this comment no longer applies to the chapter.
737	51278	22	42	25	42	25	The author team may wish to consider the wording on this line to avoid potential interpretations of being prescriptive. (Katharine Mach, IPCC WGII TSU)	Wording has been changed.
738	35914	22	42	34	0	0	Some discussions on COMIFAC could be enriching. I will prefer discussions on institutions to radiate around ecological zones, specific targets and resources (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	mention has been made of COMIFAC as a regional institution that could present possibilities for improved regional coordination of adaptation. However, available time was insufficient to fully appreciate the role of COMIFAC in adaptation, as it appears to be more focused currently on REDD+
739	36147	22	42	34	42	54	Still there is urgent need for synergy to be built among institutions so that there are credible gatekeepers and clearing houses for both socio-economic and climate data used for VIA assessments and strategies. In particular, the African climate institutions should embrace and further downscale the model/structure on climate services recently approved by WMO; the Global Framework for Climate Services (GFCS)[WMO, 2012]. (Richard Anyah, University of Connecticut)	Additional information of this detailed nature cannot be added to this section, given the need to reduce the length from 42 pages to 10 pages.
740	42833	22	42	44	42	54	A further difficulty is that the institutions that have traditionally been the focal point for UNFCCC (e.g. Ministries of Environment) often lack the mandate or strength to effectively coordinate older, more established Ministries (such as Health, Public Works, Agriculture), and tend to be inefficient in linking adaptation to development planning. This has been a key reason for recent efforts to elevate policy coordination to centrally mandated "neutral" Ministries such as Finance (in Niger and Zambia), or Offices of the Prime Minister (Madagascar). (Sofia Bettencourt, World Bank)	This point has been incorporated.
741	44325	22	42	44	42	54	Need to link to previous sections here. (Emma Archer van Garderen, CSIR)	Comment is unclear - the text mentioned refers to institutional frameworks for adaptation, which follows on from the previous section on policy, strategy and planning.
742	46224	22	42	48	0	0	What is at the root of Ethiopia's success in implementing disaster management/climate change adaptation at regional and local levels? How were citizens encouraged to attend forums and how does this combat any government-sector challenges mentioned in lines 49-53? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The relevant text has been deleted from this section, due to need to reduce from 42 to 10 pages.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
743	46794	22	43	0	44	0	The report needs to clarify what are these institutions, are they formal or informal, what are their responsibilities, to what degree are they inclusive (again gender, but also class, caste, and other variables can come into play), how are they financed, and how do they address disputes or otherwise resolve conflicts? (A. Peter Castro, Maxwell School, Syracuse University)	This has been clarified in the text - institutions discussed at national level are mainly government, although they may include broader stakeholders. At the local level, institutions run the range from government to informal, as is now stated.
744	36148	22	43	6	43	10	It should be emphasized that creating institutions that can effectively facilitate cross-sectoral adaptation planning will have to start within improving/enhancing communication and data sharing among regional NHMS and Climate Application centers (ICPAC, ACMAD, DMC-Gaberone, etc). But, these centers must also be fully engaged, through clear and appropriate communication pathways with all other interest groups and/or institutions engaged in any regional/national Adaptation Plans (Richard Anyah, University of Connecticut)	This point has been incorporated in the text in a more synthesised form.
745	44326	22	43	6	43	10	Need to indicate that this is an example. (Emma Archer van Garderen, CSIR)	Change made.
746	51279	22	43	7	43	7	The author team may wish to consider the wording of the sentence ending on this line to avoid potential interpretations of being prescriptive. (Katharine Mach, IPCC WGII TSU)	Text has been deleted.
747	54849	22	43	30	0	0	Section 22.4.2.3. The author team may wish to use a table to provide main findings in a table form and synthesize the discussion to reduce repetition. (Monalisa Chatterjee, IPCC WGII TSU)	There is insufficient information to complete a table.
748	45465	22	43	47	43	47	An example to add would be off the Maputo local government which has set-up a specialized unit within the local authority to deal with Climate Change, implement ecosystem-based adaptation and improve wetlands within the city ( See Broto, Vaesa, et al. 2013. "Climate change adaption, local governance and poverty alleviation in Maputo". Local Environment: The International Journal of Justice and Sustainability. Forthcoming (Rafael Tuts, United Nations Human Settlements Programme)	Example has been added.
749	46795	22	44	0	0	0	Clarify that such adaptations are long-term and ongoing, rather than a recent outcome of interventions alone. (A. Peter Castro, Maxwell School, Syracuse University)	This point has been clarified here and earlier in the 'needs' section.
750	46225	22	44	8	0	10	Very important that this is emphasized, but should this be an underlying focus throughout the entire section on adaptation? I think there should be greater emphasis that universally there is not just ONE adaption strategy that will meet the needs of all communities in Africa? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The point that adaptation in Africa is highly context-specific is made in a number of places throughout the chapter.
751	46226	22	44	29	0	32	Agreed that this should be further analyzed and the successes as of 2012 from the pilot programs should be discussed, depending on where they are at in the three-year program? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This comment has not been addressed due to insufficient time and space.
752	36149	22	44	29	44	31	The link between indigenous and conventional climate obs/modeling in terms of adding value to climate change adaptation within different local communities in Africa should be highlighted here. The following studies could cited ( Nyong et al., 2007; Chang'a et al., 2010; Roncoli et al., 2002; among others (Richard Anyah, University of Connecticut)	This point is made in the section on local and traditional knowledge.
753	46796	22	45	0	0	0	Terry's book (cited above) has a useful chapter on Tanzania, and its broader ideas can help frame the discussion. (A. Peter Castro, Maxwell School, Syracuse University)	This comment has not been incorporated, due to insufficient time.
754	36748	22	45	2	45	2	Should not include Bangladesh here. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Mention of Bangladesh has been deleted.
755	42834	22	45	6	45	10	Although still at the design stage, the Zambia Strategic Programme for Climate Resilience envisages support to local communities in 22 districts of selected Zambezi sub-basins to encourage the integration of climate resilient into local area development plans and integrated development plans - see <a href="http://www.climateinvestmentfunds.org/cifnet/sites/default/files/Zambia%20PPCR%20Strategic%20Program%20-%20Endorsed.pdf">http://www.climateinvestmentfunds.org/cifnet/sites/default/files/Zambia%20PPCR%20Strategic%20Program%20-%20Endorsed.pdf</a> (Sofia Bettencourt, World Bank)	This reference has been reviewed and the point has been incorporated.
756	54850	22	45	15	0	0	Section 22.4.2.5. The author team may wish to add a table summarizing the different approaches to incorporate aspects related to gender, equity, children, etc., (Monalisa Chatterjee, IPCC WGII TSU)	Table has been completed and moved up in the chapter, to frame the discussion on adaptation.
757	52301	22	45	24	0	0	The reference "(SREX SPM, 2012: 8)."; the number "8" preceded by ":", both should be deleted... (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Change has been made. Text is now in section 22.4.3: adaptation, equity and sustainable development
758	42949	22	45	29	0	43	Belongs in impacts section (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Text has been further synthesised and moved up into section 22.4.3, where it forms an important framing for the adaptation section.
759	52302	22	45	30	0	34	The reference "Patt et al, undated" should be completed (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The author team is following up on obtaining the complete reference.
760	46227	22	45	32	0	0	34-77 percent is far to wide of a range and social foundation for gender equality is very broad. What is truly meant by this statistic? There needs to be more context and more direct meaning to the statement. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Agree, but text has been further synthesised due to extreme page limits, and the statistic has been deleted.
761	52303	22	45	51	0	0	The reference "(WFP, ??)."; please replace the question marks by the correct date. (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This reference has been removed due to need to shorten text.
762	46797	22	46	0	0	0	The rights-based approach needs to be incorporated into the Executive Summary and the overall approach of the entire report. This is not simply a technical feature but a pervasive political and social aspect of the entire climate change adaptation discussion. (A. Peter Castro, Maxwell School, Syracuse University)	Text on the rights-based approach has been included in section 22.4.3 on Adaptation, equity and sustainable development, where it frames the adaptation section.
763	35711	22	46	5	0	0	Page 46, sentence 5: one reference discussing gender and development projects in a adaptation perspective is Nielsen, J.Ø., 2010, 'The outburst: climate change, gender relations, and situational analysis', Social Analysis 54(3), 76–89. In this article I (yes I admit its an article of mine) show how women in Burkina Faso has taken advantage of development projects in order to adapt to climate change. (Jonas Nielsen, Copenhagen University)	Reference has been reviewed and point added to section 22.4.3.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
764	46228	22	46	5	0	0	What actual data exists on claiming women are better at making decisions demanded by climate change? Are there examples of women at the community level implementing successful adaptation strategies? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Text has been summarised into table due to need to shorten section; hence comment can no longer be responded to.
765	46229	22	46	5	0	0	What information is there on the distribution of aid to Africa in terms of how much aid benefits men and how much benefits women? Should women receive more funding if they truly are better suited to implement long-term decisions on climate change adaptation in their communities? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Unable to go into this level of detail due to need to drastically shorten adaptation section from 42 pages to 10 pages.
766	46230	22	46	20	0	22	Very important to develop this section and discuss challenges. Children are vital agents of change and all climate change adaptation strategies are essentially revolved around the children, because they most likely, will be the worst effected by climate change. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Points on children as a group deserving special attention have been summarised and included in section 22.4.3. Unable to develop this section further due to need to reduce adaptation text from 42 to 10 pages.
767	36150	22	46	25	46	49	There is, however, still gaping disparities in the distribution of government resources and setting up of DRR platforms or DRR response strategies at the local level. It would also be good to have a brief review how any African governments have followed through with the implementation of the five pillars of the Hyogo Framework of Action (Richard Anyah, University of Connecticut)	Unsure how this comment refers to page 46, lines 25 to 49, which in the FOD dealt with human rights based approaches.
768	46231	22	46	38	0	39	In addition to indigenous people, the human rights of climate refugees need to be further examined and included in climate change policies and mechanisms. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This is an important point that could only be touched upon in the migration section. Further details are contained in Chapter 12. However, a more detailed consideration of this point will be considered for the final draft.
769	44327	22	46	44	46	49	Link again to previous section on children (Emma Archer van Garderen, CSIR)	Text on children and on human rights-based approaches has been placed in one section: 22.4.3.
770	51280	22	47	1	0	0	Section 22.4.2.6. The author team should consider deleting this section and incorporating some of the material presented here elsewhere in the chapter. (Katharine Mach, IPCC WGII TSU)	Section has been deleted.
771	44328	22	47	7	47	11	Suggest link to previous section on governance (Emma Archer van Garderen, CSIR)	This text is located in the section on governance (now section 22.4.4).
772	36151	22	47	11	47	25	At the local level should focus in smallholder farmers' response to climate extremes ( recurrent droughts/floods), seasonal rainfall forecasts/variability and maximize use of information regularly disseminated from the regional climate centers through the Seasonal Climate Outlook Forums (RCOFs) (Richard Anyah, University of Connecticut)	This comment has been reformulated and included in the Research Gaps section
773	51281	22	47	30	47	30	The author team should consider if the phrasing here ("will no longer be viable") should be qualified further. (Katharine Mach, IPCC WGII TSU)	Phrasing has been adjusted for clarity.
774	54851	22	47	30	47	34	The author team should highlight key findings such as these and translate other discussions from different sections into such clear findings where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	Agree. Additional key findings have been highlighted and placed at the start of sub-sections and paragraphs.
775	36152	22	47	41	47	46	Development of African capacity and leadership for climate change can produce good results in an environment where climate science and policy institutions are strengthened and encouraged to for synergies for capacity building and talent base that can effectively entrain new climate change science into policy and/or decision making tools. (Richard Anyah, University of Connecticut)	This comment has been reformulated and included in the Research Gaps section
776	52304	22	47	46	0	0	The reference "IIED July 2011 Reflect & Act" should be corrected; please, you can put : "IIED July, 2011" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Citation corrected, it is Chandani (2011)
777	46798	22	47	49	0	0	Hopefully the Decision-Making section can get beyond the usual platitudes regarding multi-stakeholder consensus building to tell us what have been the emerging patterns regarding decision-making, what are the reasons for such outcomes, and what other options are available. (A. Peter Castro, Maxwell School, Syracuse University)	The section has been further developed, bearing these points in mind. There is however a shortage of consolidated information on decision making for adaptation in Africa, and insufficient time to mine all relevant literature and draw this together.
778	36153	22	48	1	48	12	I suggest that this section should also review some specific African perspective and progress in this area (Richard Anyah, University of Connecticut)	This section has been revised to include specific African perspectives and experience.
779	51282	22	48	15	0	0	Section 22.4.2.7. The author team should consider deleting this section. (Katharine Mach, IPCC WGII TSU)	This section has been deleted.
780	51283	22	48	21	0	0	Section 22.4.2.8. The author team should consider deleting this section. (Katharine Mach, IPCC WGII TSU)	Section has been developed, as M&E is a critical and somewhat neglected component of successful adaptation.
781	43795	22	48	48	48	48	The recent peer-reviewed publication presents data on climate sensivity of ODA investments and exposure to weather extremes in Mozambique: Sietz, D., Boschütz, M. and Klein, R.JT. (2011: Tab. 1) Mainstreaming climate adaptation into development assistance: rationale, institutional barriers and opportunities in Mozambique. Environ. Sci. Policy 14(4): 493-502. (diana sietz, Wageningen University)	This citation has been incorporated into the report.
782	54852	22	49	3	0	0	The author team may wish to add a table highlighting key findings from this section. (Monalisa Chatterjee, IPCC WGII TSU)	A table was considered for this purpose, however it was not found to be practical. The section has been shortened and key findings are better highlighted.
783	42835	22	49	9	49	13	Suggest grouping livelihoods with social protection programs as they are often linked - these are often carried out through cash transfers or cash-for-works. Index-based weather insurance is just one instrument of a range of climate (or disaster) risk financing instruments (DRFI/CRFIs). The term DRFI is most commonly used. They include contingency funds; agricultural and property (private) insurance; sovereign insurance; reallocation of program expenditures; weather derivatives, bonds, etc. (Sofia Bettencourt, World Bank)	Recommendation has been accepted.
784	44329	22	49	18	49	21	Link to sections where these concepts were mentioned earlier. (Emma Archer van Garderen, CSIR)	Text has been adjusted accordingly.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
785	44330	22	49	26	49	39	Somewhat of an overlap with earlier in the chapter, and some repetition - suggest edit and cross reference (Emma Archer van Garderen, CSIR)	Repetition has been removed.
786	48151	22	49	39	49	39	in Scheffran et al. 2011: correct year to 2012 (Jürgen Scheffran, University of Hamburg)	Reference has been corrected.
787	46232	22	49	41	0	44	Very interesting point, but what are the solutions? Women need to be addressed in adaptation projects, so how can it be done without increasing workload? Any examples? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This has been reformulated as a suggestion and moved to section 22.4.3.1
788	46233	22	50	1	0	3	Very vague statement. Need quantitative number on "magnitude of actions" to make it relevant. Is this a reference to the economic costs, the amount of labor needed to implement adaptation strategies, improved infrastructure? What do the "actions" consist of and why is this statement included where it is? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Statement has been moved to section 22.4.2 on adaptation needs, and revised for clarity.
789	45493	22	50	11	0	0	We suggest including an example of risk transfer mechanisms for climate risk management. Suggested text includes: "In 2004, the Government of Ethiopia launched a comprehensive National Food Security Programme (NFSP) to promote enhanced food security among the most vulnerable communities in the country. As part of the NFSP, the Government established a Productive Safety Net Programme (PSNP). The PSNP aims to enable millions of chronically food-insecure rural people move out of hunger and poverty shifting from recurrent emergency assistance to more secure and predictable forms of social protection. It also promotes the livelihoods of vulnerable households through asset creation, resilience building and disaster risk reduction interventions conducted through public works using food and cash as payment. In support to the NFSP, WFP and the World Bank are working with the Government of Ethiopia to develop an integrated national risk management framework through the Livelihoods, Early Assessment and Protection project (LEAP) project. LEAP is an innovative early warning – early action tool that supports the national Productive Safety Nets Program and prompts its timely and effective scale up when a serious drought or flood is detected. LEAP provides national authorities with an advanced food security early warning system that activates contingency plans and triggers contingent finance and provides a usefull drought risk management system. As part of this mechanism, resources from a \$ US 160 million contingency fund can be made immediately available to ensure early action and effective response, protecting livelihoods, and saving lives." (Carlo Scaramella, World Food Programme)	Text on the PSNP was included in the section on Social Protection in the FOD. This section has now been merged with the risk reduction section. Suggested text on LEAP has been summarised and included in this new combined section.
790	45494	22	50	11	0	0	We suggest expanding on the role of social protection for climate and disaster risk management. Suggested text includes: "Increasingly, social protection mechanisms and safety nets are seen as important policy options and tools for managing the risk of natural disasters and supporting pro-poor climate change adaptation. Social protection programmes and safety nets, if correctly designed, have the potential not only to protect but also significantly to promote the livelihoods of poor people. "Food security and nutrition-related safety nets and social protection mechanisms can mutually reinforce each other to enhance disaster risk management and pro-poor climate change adaptation. For example, in Uganda, in partnership with the Government and the Food and Agriculture Organization of the United Nations (FAO), the United Nations World Food Programme (WFP) established the Karamoja Productive Assets Programme (KPAP), which uses food assistance to meet seasonal food needs while building productive assets, such as new rainwater harvesting structures that improve water availability for agricultural and livestock production and reduce the impact of drought on the most vulnerable lives and livelihoods." (Carlo Scaramella, World Food Programme)	Text on social protection was included in section 22.4.3.8 of the FOD. This has now been combined with the risk reduction text. Owing to the need to cut the adaptation section from 42 pages in the FOD to 10 pages (target) in the SOD, all of the recommended text could not be included. A mention of the Karamoja programme will need to be supported by a reference, which cannot be found on the internet, and has been requested from WFP.
791	51284	22	50	11	0	0	Section 22.4.3.2. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections. (Katharine Mach, IPCC WGII TSU)	This section has been reduced in length and the presentation of the argument has been tightened.
792	54853	22	50	11	0	0	Section 22.4.3.2. The author team should synthesize discussions in this section and present summary of findings. (Monalisa Chatterjee, IPCC WGII TSU)	This section has been reduced in length and the presentation of the argument has been tightened.
793	36154	22	50	11	50	25	A review or assessment of the progress in implementing the Hyogo Framework of Action in Africa may be good under this subsection (Richard Anyah, University of Connecticut)	This comment has not been incorporated due to insufficient space in the adaptation section, which needed to be reduced from 42 pages to a target of 10.
794	38290	22	50	11	50	25	"Section 22.4.3.2. Comment..." The issue on loss and damage with some typical assessments in Africa is a bit overlooked in this section. (Tatiana Arvelo, United Nations Economic Commission for Africa)	It was beyond the scope of this revision to include in-depth discussion of loss and damages. Some text on loss and damages is included in section 22.3.6.1 on Economic Security.
795	42643	22	50	28	51	20	FEWS-NET is a widely-used source of early warning information in East Africa, and the Climate Outlook Forums that provide seasonal rainfall predictions might also be worth mentioning. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This suggestion has been incorporated in the text.
796	42836	22	50	33	50	34	Another regional (and widely used) system is FEWS NET - Famine Early Warning System Network <a href="http://www.fews.net/Pages/default.aspx">http://www.fews.net/Pages/default.aspx</a> (Sofia Bettencourt, World Bank)	This suggestion has been incorporated in the text.
797	36155	22	51	1	52	20	The Meningitis Environmental Risk Information Technologies (MERIT) and some of the progress made in linking climate/weather variability and extremes to meningitis is worth citing here as well ( E.g. Thomson et al., 2006; Cuevas et al., 2007; Irving et al., 2011, etc) (Richard Anyah, University of Connecticut)	This suggestion has been incorporated in the text.
798	51285	22	51	6	51	51	"likely" on lines 6, 9, 51 -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Does not reflect probabilistic basis, hence wording has been changed.
799	42642	22	51	13	51	14	See Luseno 2003 for a nuance to this statement, regarding the value of outside climate information in communities that already have established an active EWS: Luseno, Winnie K., John G. McPeak, Christopher B. Barrett, Peter D. Little, and Getachew Gebru. 2003. Assessing the Value of Climate Forecast Information for Pastoralists: Evidence from Southern Ethiopia and Northern Kenya. World Development 31 (9):1477-1494. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	This point has been integrated into the section dealing with seasonal forecasts, where it has better fit.



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
800	42837	22	51	13	51	20	There is, however, an increasing trend to use SMS and internet-based technology for EWS, for example, in Madagascar (for cyclone warnings) and in Namibia and surrounding countries (for flood monitoring) (Sofia Bettencourt, World Bank)	This point has been incorporated.
801	41937	22	51	31	51	37	What's lacking is vulnerability assessment at local levels. (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	The author team agrees that vulnerability assessment is lacking at the local government level. However, numerous projects facilitated by NGOs and development organisations use vulnerability assessment at local levels. This nuance has been incorporated into the text.
802	42838	22	51	31	51	37	Other examples of the use of participatory planning include Botswana, South Africa, Zimbabwe and Mozambique (for the Limpopo Basin) under a recent UN-Habitat/UNEP project. These documents should be retrievable through a Google search. (Sofia Bettencourt, World Bank)	Unable to access this initiative online, to consider it for inclusion - insufficient information provided.
803	46234	22	51	36	0	37	There is obvious disconnect between assessing vulnerability to incorporate into adaptation strategies and having countries assess their own country in a participatory study. How do you get those effected most by climate change to add their insight into any vulnerability analysis? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The text includes information on participatory vulnerability assessment, as carried out in many projects and countries.
804	52305	22	52	1	0	0	"[...] (Cuevas, 2007). Mapping of local [...]"; please insert a space between "[...]" (Cuevas, 2007). Mapping of local [...]" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Done
805	46235	22	52	4	0	0	Appears that there is a lot of success in mapping, GIS models, etc. How can this technology be used to assess other characteristics of vulnerability because there seems to be a disconnect in assessing a nation's vulnerability to climate change? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This comment has not been addressed due to the need to reduce the adaptation section from 42 to 10 pages.
806	46236	22	52	5	0	0	It would also be beneficial to include the GIS map of hotspots (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you for the very useful suggestion but in summarizing information for the Second order draft we are unable to include the GIS map for the hotspots.
807	54854	22	52	5	0	0	It may be preferable if the figure on hotspots is integrated with discussion in section 22.3.3. (Monalisa Chatterjee, IPCC WGII TSU)	Thank you for the very useful suggestion but in summarizing information for the Second order draft we are unable to include the GIS map for the hotspots.
808	42839	22	52	8	0	0	Examples of these include the adoption of cyclone-resistant standards for public buildings in Madagascar. (Sofia Bettencourt, World Bank)	Added to section on climate-proofing infrastructure.
809	36156	22	52	8	52	13	Building of DRR platforms at the national and local levels as embodied in the Hyogo Framework of Action (Richard Anyah, University of Connecticut)	Added.
810	46237	22	52	35	0	0	These case studies are really important and reinforce the need for solutions to be local as emphasized earlier in the document stating, "there is general consensus that support to local-level adaptation is best achieved by starting with existing local adaptive capacity." This can only be addressed by better understanding indigenous practices. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This point is addressed in the section on local and traditional knowledge, and in section 22.4.2
811	38291	22	52	35	52	35	"Additional substantive input..." Somehow, little has been done to create or update country climate atlases and agriculture calendars. This limits the abilities of extension services to deliver the best advices to farmers. (Tatiana Arivelo, United Nations Economic Commission for Africa)	This point has been passed on to the section on research gaps, to be considered for inclusion there.
812	46238	22	52	42	0	0	Creating a platform where countries can share their lessons learned is very important and implementing this can give insight into the technological/communication gaps needed to be addressed - as talked about earlier in the document. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This point has been integrated.
813	46239	22	52	46	0	51	Important information to include. In addition to indigenous adaptation case studies, there should also be community level case studies on the role of women and children in adaptation. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	There is unfortunately insufficient space, given the target of 10 pages maximum for the adaptation section, to include this range of case studies.
814	46799	22	53	0	56	0	This is a very important section, so great care should be taken to ensure that readers appreciate the tangible benefits, as well as limitations, to participatory approaches. For example, the discussion of learning approaches should be clearer about who learns, what they do with such knowledge, and whether it is sustainable beyond the project horizon. In this regard section 22.4.3.4.3 might be more tightly integrated into the discussion of learning approaches. (A. Peter Castro, Maxwell School, Syracuse University)	Caveats have been inserted into the text to reflect this remark.
815	35915	22	53	1	0	0	Multiactor negotiation and collaboration processes need to be encouraged and monitored in order to infer and mitigate future complexities in the process (Tata et al 2012). Citation: Tata P. I., Ndikumagenge C., Ngome W. Ewane, Chicaia A. and Ron Tamar (2012) Transboundary Dialogue And Cooperation: First Lessons From Igniting Negotiations on Joint Management of The Mayombe Forest in the Congo Basin. International Journal of Agriculture and Forestry 2(3): 121-131. <a href="http://article.sapub.org/10.5923.j.ijaf.20120203.08.html">http://article.sapub.org/10.5923.j.ijaf.20120203.08.html</a> (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	This comment has been integrated.
816	46240	22	53	11	0	12	Should include the 46 projects from The Climate Change Adaptation in Africa in the document (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	A number of references are made to lessons learned through the CCAA programme, in several places in the adaptation section. It is not possible to include more, nor indeed all, of the 46 projects in this section which has very tight page limits.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
817	46241	22	53	32	0	0	his statement goes back to the role of women and how experiential learning could add unintended work to an already heavy work load for women. Is there any data that shows how a transformation from a traditional work day can be adapted into a "learning process" work day without negatively impacting women farmers. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Space restrictions for the SOD have not permitted addressing this comment, which would require a greater level of detail than is possible.
818	36157	22	53	47	53	54	However, it should be noted that no conceptual framework can be effective if it is not based on plausible and quality climate information, when designing climate change adaptation strategies. This calls for encouraging and developing synergy between science ( producers of climate information) and policy (decision making process) to come up with appropriate adaptation plans. (Richard Anyah, University of Connecticut)	This point has been covered elsewhere in the document. However, a brief caveat will be inserted in the relevant space.
819	48152	22	53	49	53	49	in Scheffran et al. 2011: correct year to 2012 (Jürgen Scheffran, University of Hamburg)	Done
820	48153	22	53	52	53	53	in Scheffran et al. 2011: correct year to 2012 (Jürgen Scheffran, University of Hamburg)	Done
821	44331	22	54	3	54	5	Link back to previous section on child centred approaches (Emma Archer van Garderen, CSIR)	Previous text on children (now in section 22.4.3) is set out as an important framing section; the text commented on refers to a practical illustration.
822	51286	22	54	11	0	0	Section 22.4.3.4. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment across all subsections. Each subsection should be reduced in length by more than 50%. (Katharine Mach, IPCC WGII TSU)	Text has been substantially reduced.
823	54855	22	54	11	0	0	Section 22.4.3.4. The author team should synthesize discussions in this section and present summary of findings. (Monalisa Chatterjee, IPCC WGII TSU)	Discussions have been further synthesised.
824	36614	22	54	13	54	13	The sub-title can fit for working group I, it is better to adjust accordingly (Girmaw Bogale, United Nations Economic Commission for Africa)	Title has been deleted
825	36158	22	54	13	54	35	Mention should be made that part of knowledge sharing should also include mechanisms/pathways of transitioning new climate science, information and products into application and appropriate decision tools to enhance adaptation (Richard Anyah, University of Connecticut)	This point has been incorporated.
826	38292	22	54	20	54	20	"Additional substantive input..." The current monitoring system is not sufficient for supporting growth and sustainable development. It is oriented more towards meteorology than climate, and more towards global interests and the presumed needs of government sectoral managers than the needs of local communities. (Tufa Dinku, Tatiana Arivelo, Seleshi B. Awulachew, Andre F. Kamgaf, Semu A. Moges, Buruhani S. Nyenzi, Yilma Sileshi (2011) Climate science, information and Services in Africa: Status, gaps and policy implications. CCDA-I Working paper no. 1. African Climate Policy Center, United Nations Economic Commission for Africa ) (Tatiana Arivelo, United Nations Economic Commission for Africa)	This additional text has been incorporated into the section.
827	52306	22	54	30	0	0	The capital letter "F" at "Firstly, climate" is not proper (Jacques Andre NDIONE, Centre de Suivi Ecologique)	corrected
828	46242	22	54	33	0	35	Need to develop this idea further. If climate data - historical, real-time, traditional - is used in decision-making at multiple levels, why is it not used in adaptation efforts. What is the obstacle? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The text to which this comment refers has been deleted from the chapter, due to extremely tight page limits. Hence this comment no longer applies to the chapter.
829	46243	22	54	37	0	43	Very important idea. Supports what I mentioned earlier about weather observers in the U.S. Is there any sort of network for farmers to share their personal observations and a person that could compile all the data and make it accessible to both practitioners and the scientific community? Any stories of success? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The author team is not aware of any such network or platform. Contributing authors note that traditional knowledge systems (including crop monitoring, environmental observations, climate forecasting, etc.) are highly contextualized, which limits its generalizability and transferability. Efforts to "harness" or "extract" this knowledge needs to account for the fact that much of it is tacit, intuitive, performative knowledge that does not easily translate into X means. Given the complexity of the point, and the tight length constraints for the chapter, the comment is not addressed.
830	45968	22	54	46	0	0	Orlove et al. 2010, not Orlove et al. 2009 (Ben Orlove, Columbia University)	Corrected
831	46244	22	55	1	0	7	Is there a concrete example of how local and traditional knowledge systems have combined with Western science? What does this look like and what are the implications for adaptation efforts? Appears to be an advantageous concept and would be beneficial to include an example, illustration, case study, etc. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	A concrete example has been added to the chapter.
832	36159	22	55	1	55	19	It should be noted that some of the case studies have relied on very short periods of special monitoring ( limited temporal scale) and thus may not reveal the full scale of uncertainty and hence may lead to maladaptation (Richard Anyah, University of Connecticut)	Agreed. A proviso along these lines has been added to the chapter.
833	46245	22	55	11	0	0	Need to definitely expand on gender lens and how is relevant to distribution of information. The chapter has discussed gender in terms of adaptation as a participatory learning process, but there has been no analysis of a gender divide in technology or information sharing. At the Global Food Security Index, Ritu Sharma mentioned that women farmers do not talk to male agricultural extension officers. Is this a phenomenon relevant to all of Africa? This idea should be expanded on if it is what is meant by "testing the sharing of forecasts in Uganda and Ghana through a gender lens." Even if this is not what was meant, the idea of lack of communication between women and men should be addressed as an obstacle to knowledge distribution. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Additional information and discussion on the gender dimension has been included in the adaptation section.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
834	38293	22	55	11	55	11	"Additional substantive input..." Atlases and crop calendars being used most often were prepared with past climate data, which does not present the current situation (Kadi, M., Njau, L.N., Mwikya, J., Kamga, A., 2011a. The State of Climate Information Services for Agriculture and Food Security in West African Countries. CCAFS Working Paper No. 4. Copenhagen, Denmark.) (Tatiana Arivelo, United Nations Economic Commission for Africa)	This point has been integrated.
835	46246	22	55	24	0	0	I think there should be a different definition of research besides a "social contract between science and society." I think this is a very vague and distracting definition. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This text has been deleted.
836	41938	22	55	24	55	24	Research Partnerships North South and South South are needed and lessons learned from various programmes can be of interest to share. Reference: <Upreti BR, Zimmermann AB, Berhanu Debele, Cissé G; with contributions from the NCCR North-South Regional Coordinators (2012). Partnerships in Development-oriented Research: Lessons Learnt and Challenges Ahead. Kathmandu, Nepal: NCCR North-South, South Asia Coordination Office> (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	Is the region appropriate?
837	38294	22	55	28	55	28	"Additional substantive input..." Services based on climate scenarios are not yet well developed in NMHSs. Many African NHMSs neither have research and development departments nor the necessary institutional arrangements to benefit from available skilled labor in climate research institutes and university laboratories. (Tufa Dinku, Tatiana Arivelo, Seleshi B. Awulachew, Andre F. Kamgaf, Semu A. Moges, Buruhani S. Nyenzi, Yilma Sileshi (2011) Climate science, information and Services in Africa: Status, gaps and policy implications. CCDA-I Working paper no. 1. African Climate Policy Center, United Nations Economic Commission for Africa ) (Tatiana Arivelo, United Nations Economic Commission for Africa)	Insufficient space to include this valid comment.
838	52307	22	56	13	0	0	The reference "McLean 2010" should be added at the list of references. Also, don't forget to add a comma between the name and the date "McLean, 2010" (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Corrected and added.
839	43401	22	56	25	0	0	Suggest adding after Berkes 2009: The rich and diverse plant and animal genetic resources used by indigenous and local communities in West and Central Africa are endowed with valuable traits that continue to be a major source of adaption to the local environment including climate and ensuring food security and improved livelihoods of the people. Moreover, traditional knowledge applied by communities to previous climatic variations has been useful in helping to select the most appropriate adaptive and/or coping mechanisms. However, challenges of the emerging and anticipated changes in the climate seem to overrun indigenous knowledge and coping mechanisms of farmers (Jalloh and Roy-Macauley, 2011). (Abdulai JALLOH, West and Central African Council for Agricultural Research and Development (CORAF/WECARD))	A modified version of this text has been incorporated, and the reference used to substantiate existing text in the chapter.
840	46800	22	56	31	0	0	The discussion is very abstract. For communities the primary concern is often their land/resource rights, for women it is gender equality, for the poor and excluded the issues are political voice and having grievances adjudicated fairly, and so on. (A. Peter Castro, Maxwell School, Syracuse University)	This valid point has been incorporated into section 22.4.3 which now deals with rights, equity and social justice.
841	51287	22	56	49	56	54	The author team should consider presenting calibrated uncertainty language to characterize its degree of certainty in these conclusions. Summary terms for evidence and agreement or levels of confidence may be particularly appropriate. (Katharine Mach, IPCC WGII TSU)	The text has been amended to reflect relevant uncertainty language, in accordance with relevant findings presented in the 2012 Special Report on Extreme Events.
842	42840	22	57	7	0	0	There are, however, increasing examples of fruitful south-south collaborations in Africa: for example, recent visit by Malagasy expert to Mozambique to share experiences on cyclone-resistant buildings (funded through the World Bank/GFDRR); and the sharing of DRR experiences between Mozambique and Sao Tome and Principe (funded through UNDP) (Sofia Bettencourt, World Bank)	Space and time restriction shave not permitted addressing this comment.
843	51288	22	57	7	0	0	Section 22.4.3.4.5. The author team should delete this section and merge any relevant material into other sections of this chapter. (Katharine Mach, IPCC WGII TSU)	This section has been deleted and relevant material merged into other sections of the chapter.
844	45832	22	57	7	0	54	This is a very important piece. It seems though that much as there are lots of interesting and innovative adaptation management programs going on in Africa broadly, and within countries and communities, most of these programs are in silos as there have not been any known mechanism of inter-jurisdictional knowledge transfere and learning. This is even so within countries, and it tends to reducwe the fact that adaptation is essentially about learning and change and programs or projects should begin from a pedagogical premise. This, in my view is very important, as it is necessary that all aspects of adaptation programming should have a learning and knowledge management component. As an African, living and working in adaptation in Canada, I believe perhaps Africa could follow that Candaian example of creating regional adaptation collaboratives that will bring different regions and countries together to collaborate in advancing adaptation knowledge development, policy capacity and shered programming. Such arrangements creates a platform and a venue for transboundary knowledge development and exchange. It is worrying that inspite of current works and progress in climate change and adaptation, there is still a lack of awareness accross scales and levels. Many people, including politicians are not aware of climate change and do not understand its manifestations. The is essentially because leaders in the various countries are not aware and have failed to provide the necessary support to create the needed education and communication. It might be helpful for education and communication programs to be framed within the context- of place and community by using relevant local experiences and realities to frame messages. Both formal and non-formal educational processes could employ what I call in my works as critical pedagogy of place, or community focused, and experirntial learning mecahanisms to make climate change adaptation messages relavant and understandable to local people. CC adaptation messages should also be directly linked to Disaster Risk Reduction issues and here I believe schools and the formal education sectors could lead community based and participatory processes. (This is also an area that I am currentloy doing some work on and could provide fuerther details if required. (Bob Manteaw, Government of Alberta)	Elements of this comment have been incorporated into sections dealing with knowledge, communication and training, and efforts are being made to follow up with the reviewer for appropriate references.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
845	45833	22	57	7	0	54	(continued) worrying that inspite of current works and progress in climate change and adaptation, there is still a lack of awareness across scales and levels. Many people, including politicians are not aware of climate change and do not understand its manifestations. The is essentially because leaders in the various countries are not aware and have failed to provide the necessary support to create the needed education and communication. It might be helpful for education and communication programs to be framed within the context- of place and community by using relevant local experiences and realities to frame messages. Both formal and non-formal educational processes could employ what I call in my works as critical pedagogy of place, or community focused, and experintial learning mecahanisms to make climate change adaptation messages relavant and understandable to local people. CC adaptation messages should also be directly linked to Disaster Risk Reduction issues and here I believe schools and the formal education sectors could lead community based and participatory processes. (This is also an area that I am currentloy doing some work on and could provide fuether details if required (Bob Manteaw, Government of Alberta)	See response for comment 844 - this comment is identical.
846	41939	22	57	7	57	43	Knowledge sharing, communication, education and training ask all for a good relationship between reserachers and policy makers. Reference: <Koné, Brama, Mathieu Feagan, Vveline A Houenou, Nicolas Brou, Pascal V Houenou, Benja-min Fayomi, Emmanuel Ngnikam, Gueladio Cissé, Jerry Spiegel, and Edouard Kouassi (2012). Facilitating the Relationship Between Researchers and Policy-Makers: Experiences from Three Ecohealth Projects in West and Central Africa.” EcoHealth January 2012> (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	This point has been incorporated.
847	52308	22	57	10	0	0	In addition to AfricaAdapt website, please visit the <a href="http://www.africanclimate.net/">http://www.africanclimate.net/</a> , some useful information can be picked up there... (Jacques Andre NDIONE, Centre de Suivi Ecologique)	The website has been visited, but there has been insufficient time and space to fully incorporate this comment.
848	51289	22	57	20	0	0	Section 22.4.3.5. The author team should delete this section and merge any relevant material into other sections of the chapter. (Katharine Mach, IPCC WGII TSU)	Disagree, it is very important and needs to stand out
849	51290	22	58	7	0	0	Section 22.4.3.6. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment. (Katharine Mach, IPCC WGII TSU)	This section has been substantially re-worked. The length has not been reduced as this is considered extremely important information.
850	44332	22	58	7	59	33	Wetland restoration comprises a further key exmple here, including approaches that may fulfil both adaptation and mitigation objectives. (Emma Archer van Garderen, CSIR)	Wetland management for adaptation purposes has ben mentioned in sections 22.4.4.4 and 22.4.5.6, but is not yet included in the section dealing with integrated adaptation - mitigation responses. However, the importance of approaches that restore local ecosystems is mentioned in section 22.6.1.
851	46247	22	58	16	0	0	Need definition of “intact ecosystem services and biodiversity” and how it varies from “hard solutions to climate change.” (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	There is unfortunately insufficient space to include all defitions, which might indeed be useful.
852	46801	22	58	25	0	26	I disagree with the text: of course communities and individuals have been always responding to climatic variability, including long-term shifts in weather patterns. We may have just discovered climate change in recent decades, but farmers, herders, and fisher folk have always had the long-term, practical task of trying to earn a living with nature, and adjusting to its patterns. (A. Peter Castro, Maxwell School, Syracuse University)	The author team agrees with the reviewer and the text has been re-worded to clarify this.
853	46802	22	59	0	0	0	Cost needs to be discussed prominently regarding technology. (A. Peter Castro, Maxwell School, Syracuse University)	Agreed. Costs should be considered at multiple levels, i.e. economic costs, opportunity costs and costs in terms of the inevitable exclusion that takes places when one group is favored over another when introducing new technologies that are developed and promoted by northern institutions with little input from the communities they ostensibly are trying to help. The issue of costs will be given further consideration in the subsequent draft.
854	46248	22	59	6	0	0	There should be a footnote defining “destock” as there was for water harvesting on the previous page. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This comment has been addressed by adjusting the wording to provide for greater clarity of meaning.
855	51291	22	59	36	0	0	Section 22.4.3.7. Revision of this section should aim to reduce length and tighten the presentation of the author team's assessment.Given the note provided on lines 38-39, I would note that the author team should ensure that any overlap between the sections is minimized. (Katharine Mach, IPCC WGII TSU)	Length has been reduced. There is no overlap as all sectoral adaptation text is contained within the adaptation section.
856	54856	22	59	36	0	0	Section 22.4.3.7. Key findings from this section should be included in the table on adaptation options in section 22.4.3.1. (Monalisa Chatterjee, IPCC WGII TSU)	Unclear what is meant by this comment - no tabel has been developed in section 22.4.3.1
857	46249	22	59	38	0	39	Is there a need to address sewage and storm-water runoff infrastructure in larger urban areas? Are there sewage and runoff systems that are already fully developed and need to be retrofitted to compensate for more extreme precipitation or does there need to be emphasis on climate change when developing sewage and run-off infrastructure for growing urban areas? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	A placeholder was inserted to address this comment, but extremely tight page limits have prevented this important point from being addressed.
858	42841	22	59	42	0	0	An important technological innovation is the introduction of climate-resistant seeds by CGIAR centers - for example, IRRI's promotion of climate change-ready rice <a href="http://irri.org/index.php?option=com_k2&amp;view=item&amp;id=9148:climate-ready-rice&amp;lang=en">http://irri.org/index.php?option=com_k2&amp;view=item&amp;id=9148:climate-ready-rice&amp;lang=en</a> (Sofia Bettencourt, World Bank)	The use of new varieties/seeds will be considered further in the final draft.
859	48628	22	59	52	59	53	I don't understand how these two groupings relate to the previous apparently exclusive groupings. (Dáithí Stone, University of Cape Town)	Text has been deleted in the process of tightening and synthesising the chapter.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
860	46250	22	61	1	0	0	"Partnerships through farmers and NGOs" - from your experience in Africa, do you have any particular insight into conservation agricultural successes in Africa? I think the purpose of the "Box" concept is similar to the boxes we use in WW reports and that a box should delve deeper into case-specific successes. I think this would be a great place to include something you witnessed and are passionate about. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Successes of conservation agriculture are considered in the box. Space permitting the team will delve into this further for the final draft.
861	44333	22	61	1	61	2	One example of a hanging sentence (Emma Archer van Garderen, CSIR)	Sentence completed.
862	54857	22	61	27	61	31	The author team should highlight key findings such as these and translate other discussions from different sections into such clear findings where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	This is a key challenge for this chapter and should be an important consideration in making the final draft sharper.
863	46251	22	61	33	0	0	What is the definition of "virtual water" - need more context. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Clearer context for virtual water will be given in the next draft.
864	38899	22	61	36	0	0	The report is quoting two figures about the volume of Egypt's virtual water . One of the report is quoting that Egypt's share of virtual water is 300 BCM, while the other report is giving the figure of 10.9 BCM. The variation between the two figures is staggering, and would cast some doubts about the validity of the sources of the information. (Mohamed Tawfic Ahmed, Suez Canal University)	this comment has been referred to the LA dealing with water. It appears that the text has been deleted in the SOD, due to page limitations.
865	46252	22	61	37	0	0	Agreed, what does BCM stand for? Need for context or a more familiar form of measurement. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Acronym stands for billion cubic metres, this has been inserted in the text.
866	46253	22	62	4	0	0	How much of global food waste occurs in Africa and what percentage is due to improper food storage? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The global average of food produced that is wasted is 30-35%. No reliable figures for Africa exist.
867	48629	22	62	4	0	0	Does this number have relevance to Africa? (Dáithí Stone, University of Cape Town)	What number?
868	51292	22	62	17	0	0	Section 22.4.3.7.2. The author team should consider deleting this subsection. (Katharine Mach, IPCC WGII TSU)	A section on infrastructural adaptation in Africa cannot credibly be deleted. Section has been completed.
869	36160	22	62	25	62	25	I suggest there should an explicit sub-section on Climate Change Adaptation and Energy in Africa. How will limitation of diverse energy sources an impediment to effective adaptation? (Richard Anyah, University of Connecticut)	This is an important point; a placeholder has been inserted given insufficient time to address this, and the comment has been referred to the CLAs, to be considered in the final draft.
870	46803	22	62	26	0	0	Section 22.4.3.8: The social protection section needs expansion, including a discussion of how it truly differs from mainstream food aid relief and development efforts. In addition, its political content ought to be acknowledged; for example, it has been charged by human rights groups that Ethiopia uses its safety net as a means of political patronage and punishment, excluding people who do not support the ruling party. My feeling is that these programs have yet to emerge as distinctly new approaches. (A. Peter Castro, Maxwell School, Syracuse University)	The question of why social protection is or is not different from food aid and development efforts is beyond the scope and purpose of this section, which focuses on what it can contribute to adaptation. The author team agrees that the politics of social protection is under discussed, and has included this as a research gap. Additional information and references have been included to provide a more nuanced analysis of the potential contribution of social protection to adaptation.
871	42842	22	63	3	63	35	In addition to insurance and social protection, this section should mention the importance of contingency funds, both at the national as well as local levels (as it exists, for example, in Ethiopia). These allow national and local governments to help prepare for a given season once seasonal forecasts and/or plans are released. (Sofia Bettencourt, World Bank)	Relevant text has been added.
872	35712	22	63	38	0	0	I think this section miss a discussion of the long standing adaptation strategy to climate variability in the Sahel: Circular seasonal labour migration. References are plenty. (Jonas Nielsen, Copenhagen University)	Appropriate text has been added.
873	46804	22	63	38	0	0	Section 22.4.3.8.2: How is it possible to discuss migration without highlighting the role of remittances? (A. Peter Castro, Maxwell School, Syracuse University)	Appropriate text has been added.
874	36161	22	63	38	63	54	However, the aspects of climate-forced migration that can exacerbate environmental degradation (at the margins of e.g the Sahel) and accelerated land use changes with potential feedbacks on local climate that can in return increase vulnerability. (Richard Anyah, University of Connecticut)	Appropriate text has been added.
875	51293	22	63	52	63	52	"unlikely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Wording has been adjusted.
876	46254	22	63	54	0	0	What is meant by a "decreasing importance of climate factors for livelihood strategies"? If this is an example of a counterargument, it needs to be further developed and include examples from Mertz to support this statement. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Text has been moved to section on Livelihood diversification and further explained.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
877	46805	22	64	5	0	0	Section 22.4.3.8: In cultural aspects, there is a danger with treating culture as an autonomous, static feature of life. It needs to be remembered that culture itself is an adaptation to circumstances, as much as a consequence as a causal factor. For example, in northern Burkina Faso, it is arguable that the upper caste households do what they do because they have limited options (for example, regarding wealth accumulation), but they might pursue entirely different ends given different circumstances, such as improved infrastructure or greater cash earning opportunities. It's not simply that the outside world floods in, but that the people themselves decide to pursue different objectives. In addition it seems odd that we've come to the middle part of the report before learning that cultural or legal barriers may exist regarding women's ability to own land. This ought to be referred to with prominence and clarity early on in the report (when speaking about clarity, the complexity of women's rights to lands, as distinct from issues of ownership). Finally, I am puzzled why charcoal burning and qat chewing in Somalia end up classified as 'market failure'? Quite clearly, both the charcoal and qat markets seem to be working, whereas the people engaged in it seem to be engaged in a moral failing -- at least from the perspective of the report. The mis-spending of income by adult males for alcohol, drugs, prostitutes, and other non-family purposes is a wider, long-term problem that certainly needs addressing. I would be curious to know, since this is a problem that goes beyond Africa, whether similar market (i.e. moral) failings will be mentioned for other continents, or is Africa special in this regard? (A. Peter Castro, Maxwell School, Syracuse University)	The comment conflates the text - it refers to both text on cultural factors, as well as the ensuing text on livelihoods diversification, which is a separate sub-section. The placeholder in the text on market failures is not related to the subsequent example on Somaliland. Nevertheless, some of the points made in the comment have been taken up.
878	51294	22	64	36	0	0	Section 22.4.3.8.4. The author team should consider deleting this subsection. Additionally, please note that the material on lines 42-49 is repeated from page 61, lines 33-41. (Katharine Mach, IPCC WGII TSU)	Section has been deleted.
879	36162	22	64	36	64	49	Adaptation framing in Africa is still heavily donor-dependent and/or directed. Many countries also still do not have proper adaptation financing policies that ensure equitable disbursement to all stakeholders in a coordinated systems. Often climate information producing centers are left out of the equation or disproportionately funded, except the current CLimDev project tends to focus on an integrated approach that bridges science (information producers) and applications that is essential for effective adaptation policies (Richard Anyah, University of Connecticut)	Section to which this refers has been deleted. Check that this point is covered in Oliver's new section on finance.
880	42950	22	64	42	0	49	Repetition (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Text has been deleted.
881	45378	22	64	42	0	49	Virtual Water Trade is an interesting subject to include in AR5 I reckon. Yet I do not understand why this is part of 'financial mechanisms'? (Willem Pieter Pauw, German Development Institute (DIE))	Text has been deleted from this section, where it had been accidentally repeated.
882	46255	22	64	42	0	49	This is exactly the same paragraph as Page 61: Line 33-41. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Text has been deleted.
883	48630	22	64	44	64	47	This is copied from somewhere above. (Dáithí Stone, University of Cape Town)	Text has been deleted.
884	51295	22	64	52	0	0	Section 22.4.3.9. The author team should consider deleting this subsection, potentially moving some of the statements to other relevant sections of this chapter. (Katharine Mach, IPCC WGII TSU)	Text has been incorporated under earlier risk reduction section.
885	46256	22	65	3	0	6	What are examples of household livelihood diversification? Specific examples of on-farm diversification or specialization needed. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Some examples are provided in the section on risk reduction, as well as in the section on adaptation practices of farmers (technology and infrastructure section).
886	46257	22	65	33	0	0	I agree - there need to be examples of what "maladaptation" looks like and how it can be prevented. Very unlikely that strategies are formed with "maladaptation" in mind, so what kinds of aspects need to be addressed to reduce the risk of maladaptation. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Several specific examples have been included.
887	46915	22	65	33	0	0	This section should include the long-term hydrodependency risks and threats to ecosystem health and community resilience as a result of increased dam building in the continent. Evidence of this is ample, including the World Bank's commitment to large hydropower projects in Africa as part of its new Energy Strategy. (Katy Yan, International Rivers)	This point has been incorporated in section 22.4.5.8
888	51296	22	65	36	0	0	Section 22.4.4. Revision of this section should aim to reduce the length and tighten the presentation of the author team's assessment. (Katharine Mach, IPCC WGII TSU)	Section is being reduced in length.
889	54858	22	65	36	0	0	Section 22.4.4. The author team should synthesize discussions in this section and present summary of findings. (Monalisa Chatterjee, IPCC WGII TSU)	Discussions have been synthesised. Adding summaries to each sub-section would exceed the page limits even further than is already the case.
890	46806	22	65	36	70	0	Section 22.4.4: There appears to be a lot of redundancy and repetition with previous sections. A lot of this material ought might fit into those places, particularly where participatory and social aspects have not been addressed adequately. (A. Peter Castro, Maxwell School, Syracuse University)	Text has been further synthesised and redundancy reduced.
891	39071	22	66	25	0	0	A case study undertaken of the Northern Cape in South Africa highlighted the key barriers to implementing adaptation strategies facing local governments viz. institutional capacity and financial resources (See Mukheibir, P. 2007, 'Qualitative assessment of municipal water resource management strategies under climate impacts: the case of the Northern Cape, South Africa', Water SA, vol. 33, no. 4, pp. 575-581.). (Pierre Mukheibir, University of Technology Sydney)	This reference has been incorporated.
892	46258	22	66	37	0	38	Do you have any suggestions on the best way to summarize the recorded barriers and limits to climate change adaptation? Do you want to bring attention to any barriers that are not recorded or mentioned that should be acknowledged as a limits on climate change? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Text has been synthesised.
893	42951	22	67	10	0	0	What reasons? (Mark Howden, Commonwealth Scientific and Industrial Research Organization)	Added
894	36163	22	67	29	67	33	I think the critique offered in these statements are valid but at the same points at the way inferences made from limited data or extrapolations/interpolations made from such models can easily be flawed. Models should however be properly validated if time-tested adaptation strategies are to be designed. (Richard Anyah, University of Connecticut)	Deleted

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
895	46394	22	68	21	0	0	Reference is: Mather and Stretch 2012. A perspective on sea level rise and coastal storm surge from Southern and Eastern Africa: A case study near Durban, Water 2012, 4, 237-259; doi:10.3390/w4010237. (Andrew Mather, eThekweni Municipality)	Added
896	51297	22	69	1	0	0	Section 22.4.4.1. The author team should delete this section. (Katharine Mach, IPCC WGII TSU)	Deleted
897	51298	22	69	10	0	0	Section 22.4.4.2. The author team should consider deleting this section. (Katharine Mach, IPCC WGII TSU)	Deleted
898	45380	22	69	46	0	47	What is the source of this 1-4 bn? Different sources say very different things. Does this 1-4 include private finance? Does it include ODA that is OECD DAC eligible? Loans? grants? (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
899	45379	22	69	46	0	53	This section is underdeveloped. Some important ideas are still missing; e.g. the role of capacity to attain financial resources, the accessibility of financial resources (with a link to the open access modality in the AF and GCF), the proliferation of climate finance funds, etc. I would be happy to have a look again when there is a SOD, or even to be a co-author (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
900	45382	22	69	46	0	53	What is missing in this section is the need to build institutional capacity in Africa. Climate finance, including adaptation finance, is on the increase. However, Annex I countries often have difficulties in finding good partners and projects/programmes. At the same time, many vulnerable people are not even aware that adaptation finance is available. Institutional capacity is important to overcome these problems. (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
901	45381	22	69	47	0	48	There are indications that Africa receives proportionately lower amounts. Africa consists mostly of these developing countries; e.g. most of the LDCs are located in Africa. Maybe the authors mean to state that only a fraction of the 1-4 bn goes to Africa? But again, where does the 1-4 bn figure come from? It is also worthwhile here to mention that the UNFCCC/COP agreed that climate finance should be prioritized towards the most vulnerable countries, incl LDCs, SIDS and Africa (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
902	48631	22	69	48	69	49	I'm not sure there is really any message from this. 26% of the projects are in Asia, and these account for 31% of the funds. So the argument is that Asian projects get more funds per project than one might expect? But then there is the question of whether Asia or Africa receive the number of projects they should... (Dáithí Stone, University of Cape Town)	Section has been rewritten
903	46259	22	69	49	0	0	How much funding from SCCF was given to African projects? A disproportionately lower number or about the same as Asia? Are there any explanations why Africa receives disproportionately lower funds? This seems counterintuitive as, in my opinion, the majority of humanitarian efforts seem to revolve around "victims" in Africa. Is there more data or possible explanation as to why Africa receives less funding? I agree that there is not enough funding for the future, but why less funding than other developing countries? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Section has been rewritten
904	45383	22	70	3	0	4	This ref might be outdated (Willem Pieter Pauw, German Development Institute (DIE))	Unsure which reference is being referred to - no reference on line 3.
905	46260	22	70	8	0	0	Discussion should be on unequal distribution of funding for men and women and an emphasis should be on funding adaptation strategies that are gender neutral. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Section has been rewritten
906	51299	22	70	10	0	0	Section 22.4.6. The author team should consider if this material is covered sufficiently in previous sections, potentially removing this section as a separate subsection. (Katharine Mach, IPCC WGII TSU)	Section has been deleted.
907	46261	22	70	18	0	0	What does this "new set of capacities" need to include in order to be successful? There is too much emphasis on how adaptation won't work in Africa, but this section needs to provide the ways in which adaptation could work. Needs to have more optimism, not pessimism, otherwise what is the purpose of writing a 136 page chapter if not to address tangible solutions? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been deleted. The adaptation text does however contain numerous examples of successful adaptation approaches and initiatives. It is, however, becoming increasingly clear in the literature that there are significant barriers to adaptation in Africa, and that many of these will act as limits. The chapter thus reflects this growing consensus.
908	36749	22	70	33	0	0	This section should provide a case for North Africa because of the high sensitivity and vulnerability to climate change. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	due to space constraints case studies have been deleted in the final
909	48637	22	70	33	0	0	A preamble to this section would be helpful. What are you showing some case studies? What are they intended to illustrate? (Dáithí Stone, University of Cape Town)	due to space constraints case studies have been deleted in the final
910	44334	22	70	33	70	35	It would be useful here to have an introduction that introduces the case studies, describes key themes and findings, criteria for their inclusion, etc (Emma Archer van Garderen, CSIR)	due to space constraints case studies have been deleted in the final
911	48008	22	70	33	73	19	This reader looks forward to the completion of the case study on the Okavango, and hopes that it will include a discussion of climate change impacts on indigenous peoples. (Patricia Jacobberger-Jellison, NASA)	due to space constraints case studies have been deleted in the final
912	48009	22	70	33	73	19	I would strongly urge that Madagascar be included as an additional case study. The chapter is somewhat weak on actual discussion of impacts to biodiversity, and Madagascar's high rate of endemism and biodiversity and the changes thereto from climate change (as well as other stressors) are aspects that should not be missing. (Patricia Jacobberger-Jellison, NASA)	due to space constraints case studies have been deleted in the final
913	51300	22	70	35	0	0	Section 22.5.1. Revision of this section should aim to reduce the length by 60% and tighten presentation of the assessment. (Katharine Mach, IPCC WGII TSU)	We have tried to reduce the length of this section. We will continue to work on it in the next draft.
914	40156	22	70	38	70	30	misleading statement: Kilimanjaro is not representative of conditions elsewhere in Africa. At a fundamental level it is the only site with permanent snow/ice! (Peter Burt, University of Greenwich)	I have added the glaciers as unique feature in line 40
915	35448	22	70	47	0	0	"Glaciers on Kilimanjaro"? (David Vaughan, British Antarctic Survey)	I have corrected the sentence
916	46262	22	70	47	0	0	What is meant by "their extent"? Needs more context - extent meaning biodiversity, land? Who is "their"? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	I have corrected the sentence

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917	48633	22	70	47	0	0	Kilimanjaro's glaciers? (Dáithí Stone, University of Cape Town)	I have corrected the sentence
918	40157	22	70	47	70	47	sense? 'their extent'? (Peter Burt, University of Greenwich)	I have corrected the sentence
919	40158	22	70	47	70	47	insert 'has' before 'decreased' (Peter Burt, University of Greenwich)	I have corrected the sentence
920	44221	22	70	47	70	47	I assume it is meant the glaciers. Please refer to more recent papers: CULLEN, N. J. et al.. 2006. Kilimanjaro: Recent areal extent from satellite data and new interpretation of observed 20th century retreat rates. Geophysical Research Letters, 33, doi:10.1029/2006GL027084 N.J. Cullen is presently preparing a recalculation of ice changes on Kilimanjaro which should be submitted soon. (Georg Kaser, University of Innsbruck)	I have corrected the sentence and included the new reference
921	51301	22	70	47	70	47	The sentence here should be clarified. (Katharine Mach, IPCC WGII TSU)	I have corrected the sentence
922	40159	22	70	48	70	48	delete 'air' and move 'rather than in increasing temperature' from line below to after 'humidity' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
923	44222	22	70	49	70	49	Kaser, G., T. Mölg, et al. (2010). "Is the decline of ice on Kilimanjaro unprecedented in the Holocene? ." The Holocene 20: 1079-1091. (Georg Kaser, University of Innsbruck)	I included the new reference
924	40160	22	70	51	70	52	why introduce Kelvin temperatures? (Peter Burt, University of Greenwich)	To my knowledge, for temperature differences K (instead of °C) is used (cp. eg. McVicar & Körner 2012, Oecologia)
925	51302	22	70	51	70	53	The author team should consider the phrasing used to describe the A1B scenario here. (Katharine Mach, IPCC WGII TSU)	The sentence has been removed.
926	48634	22	70	51	70	54	This subsection is for "observed changes", and we can't have observed 2100. (Dáithí Stone, University of Cape Town)	The paragraph has been removed from here. All the observed and projected climate change discussion has been shifted to section 22.2.
927	40161	22	70	54	70	54	what type of shift, how has it occurred? (Peter Burt, University of Greenwich)	The paragraph has been removed from here. All the observed and projected climate change discussion has been shifted to section 22.2.
928	51303	22	71	1	71	1	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	I have removed "likely"
929	40162	22	71	9	71	9	change 'fires played increasingly a destructive' to 'fires have played an increasingly destructive' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
930	48635	22	71	9	71	10	How do you know that climate change was indeed a driver of the increasingly destructive role of fires? (Dáithí Stone, University of Cape Town)	It was - as written in the sentence - an interplay between climate change and increasing anthropogenic impact, which is explained in the cited reference
931	48636	22	71	12	71	14	I'm not sure what is being said here. (Dáithí Stone, University of Cape Town)	I have corrected the sentence
932	40163	22	71	13	71	13	text does not makes sense (Peter Burt, University of Greenwich)	I have corrected the sentence
933	40164	22	71	16	71	16	insert 'the' after 'However,' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
934	40165	22	71	16	71	16	insert 'The' before 'High' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
935	51304	22	71	16	71	16	It would be preferable to indicate more specifically the magnitude of the changes here in place of simply using the word "alarming." (Katharine Mach, IPCC WGII TSU)	since this magnitude is described in the previous paragraph, I have added "as described above"
936	40166	22	71	17	71	17	genus name should be in italics (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
937	40167	22	71	20	71	20	superscript required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
938	40168	22	71	29	71	29	reference required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
939	40169	22	71	29	71	29	superscript required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
940	40170	22	71	30	71	30	superscript required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
941	40171	22	71	31	71	31	superscript required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
942	40172	22	71	32	71	32	m' for 'Million' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
943	40173	22	71	40	71	40	reference required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
944	40174	22	71	42	71	42	reference required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
945	36164	22	71	48	71	53	possible trigger of climate-human-wildlife conflicts (Richard Anyah, University of Connecticut)	perhaps but we don't have literature on this



#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
946	48638	22	71	48	72	2	Reading this paragraph, I was wondering what lessons I could learn from this case study. Reading between the lines of this case study, and this paragraph in particular, the story that emerges to me is that we have an extremely complex system driven by a possible complex, interconnected set of drivers. I am unfamiliar with the 10-year-old study, but my usual skeptical reaction to this is to suppose that these are plausible hypotheses for drivers rather than that an attribution chain has been demonstrated. Perhaps rising temperatures have been directly involved, that's plausible, but even if they are not, why is the elephant population growing? Is that a response to climate change? Perhaps not, and probably the increase in the Masai population isn't. But whatever is driving these is ultimately a driver for the habitat change. And if all of these drivers are indeed important, are their responses additive or multiplicative, e.g. if the elephant population had not grown would the rising temperatures have had an impact, or were both factors needed? And we are only talking about the habitat change on the northern foothills of one (somewhat relatively pristine) mountain here! So what would the message be from the attribution side? I'd say that it's crazy to think we will ever address these research questions adequately, and therefore it will have to be decided whether policy decisions operate on solid causal evidence or some lesser level of plausible causal chains. So perhaps this is too attribution-centric and long for inclusion in the case study, but it would be this sort thing that I would think the case studies should be illustrating. (Dáithí Stone, University of Cape Town)	I fully agree and have added a respective sentence
947	40175	22	71	49	71	49	move 'influence to after 'also' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
948	40176	22	72	13	72	13	superscript required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
949	44223	22	72	31	0	0	The following paper may be of interest for this section: Mölg, T., D. R. Hardy, et al. (2008). Tropical Glaciers in the context of climate change and society: Focus on Kilimanjaro (East Africa). The Darkening Peaks. Glacier retreat, science, and society. B. Orlove, E. Wiegandt and B. Luckman. Los Angeles, Berkeley, London, California University Press: 168-182 (Georg Kaser, University of Innsbruck)	I have added the new reference
950	51305	22	72	32	72	32	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	I have exchanged "likely" by "probably"
951	40177	22	72	36	72	36	Today' is misleading, the supporting reference is 20+ years old! (Peter Burt, University of Greenwich)	I have added a new reference
952	40178	22	72	38	72	38	reference required (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
953	40179	22	72	40	72	40	text does not make sense (Peter Burt, University of Greenwich)	I have corrected the sentence
954	40180	22	72	40	72	40	bad English. Don't start sentence with 'But' (Peter Burt, University of Greenwich)	I have corrected the sentence
955	48639	22	72	44	72	54	Essentially this case study is based on the foundation that decreased precipitation has increased the area burned by forest fires and, implicitly, that this decrease in precipitation is anthropogenic. This is entirely plausible, but I'm not sure we are at the stage of being very confident about this. If further study concludes that this is in fact not the case (and I'd say that's entirely possible) then this case study becomes meaningless. But it shouldn't be. Whether or not decreasing precipitation has caused more fire, you certainly can't argue in a forest setting that it has helped counter other drivers of increased forest fire incidence. Whether or not decreased precipitation is a driver, and in turn whether greenhouse gas emissions have driven that, what has happened to the adaptive capacity? We have isolation of the mountain's flora and fauna from neighbouring mountains, at the same time as we might expect them to be pushed upslope. There is increased water needs for an increased population, etc. The summary then is that we have plausible explanations for how local changes in climate, which may or may not be anthropogenic, for what has been happening over the past century. At the same time the adaptive capacity of many of the systems has been decreasing. This is a dangerous combination and worth highlighting, and it doesn't depend on one uncertain pedestal. That's my take on it anyway. (Dáithí Stone, University of Cape Town)	I agree and have added a respective sentence in the conclusions
956	44335	22	72	49	72	49	Is it really wise to use the term 'climate change driven fires' ? (Emma Archer van Garderen, CSIR)	I think it is appropriate as shown in the previous paragraphs and the cited literature
957	40181	22	72	51	72	51	m' for 'Million' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
958	51306	22	73	3	0	0	Section 22.5.2. The author team should consider excluding this case study. (Katharine Mach, IPCC WGII TSU)	This case study has been excluded.
959	51307	22	73	8	0	0	Section 22.5.3. The author team should consider excluding this case study. (Katharine Mach, IPCC WGII TSU)	This case study has been excluded.
960	40182	22	73	11	73	19	references required (Peter Burt, University of Greenwich)	This case study has been excluded.
961	36165	22	73	20	71	20	I suggest a sub-section on Nile Rive Basin/Delta be included (Richard Anyah, University of Connecticut)	due to space constraints we have not been able to add this in the final draft.
962	48646	22	73	22	0	0	This section is all about flooding in Lagos, which is a small subset of what the title covers. (Dáithí Stone, University of Cape Town)	Attempt has been made to broaden the discussion in the earlier sections
963	41940	22	73	22	73	22	The title may be misleading somehow. The text is talking a lot about FLOODS rather than Coastal zones and urbanization as such. (Guéladio Cissé, Swiss Tropical and Public Health Institute (Swiss TPH))	The case study has been revised.
964	48645	22	73	22	74	19	Right now all this case study really tells me is that much of Lagos is vulnerable to flooding, with a side message that rainfall events have shifted to higher intensity. Is that what is intended? There is no indication of changes over time in the vulnerability, risk, or impacts, nor of the possible contribution of non-climate factors to those trends such as the enormous immigration to Lagos over the past few decades. Is that as you intended it? (Dáithí Stone, University of Cape Town)	The case study has been revised. The focus is to present current conditions and challenges.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
965	44896	22	73	24	0	0	Another very interesting case is the city of Beira, Mozambique, that has 75% of its surface area below sea level. This might be an interesting paper: Kusangaya, Samuel (n.d.) An assessment of the potential effects of climate induced sea level rise on land uses and land cover in Beira, Mozambique [downloaded www.planet-action.org/.../r9594_93_kusangaya_...]. (Celine Verissimo, University College London)	The case of Beira has been highlighted in the revised draft
966	40183	22	73	24	73	24	insert , after 'Nigeria' (Peter Burt, University of Greenwich)	The case study has been revised.
967	45466	22	73	24	73	24	Another African city example to mention about here would be low-lying Saint-Louis, Senegal that at present is actively planning to relocate families from locations most exposed to sea level rise and storm surge. (See Silver, Jonathan, et al. 2013. "Climate change, urban vulnerability and economic development in Saint-Louis and Bobo Dioulasso: Learning from across West African cities". Local Environment: The International Journal of Justice and Sustainability. Forthcoming.) (Rafael Tuts, United Nations Human Settlements Programme)	Mention of Saint Louis has been made in the revised draft
968	48640	22	73	25	73	27	Is there literature to support this assertion? (Dáithí Stone, University of Cape Town)	Yes, but this has been removed as it is no longer relevant for the revised draft
969	48644	22	73	29	73	37	The way this is written people are going to say "IPCC says greenhouse gas emissions cause flooding in Lagos". You don't actually say that, but from the way this is written one could argue that it seems implied. What you could do then is note that this trend has been seen in Lagos, and whether or not it is related to greenhouse gas emissions it does provide a case study of possible impacts of trends in precipitation behaviour in a vulnerable urban setting. (Dáithí Stone, University of Cape Town)	Suggestion incorporated.
970	48641	22	73	34	0	0	One thing my hydrologist colleagues keep telling me is that heavier rainfall events do not necessarily translate into more flooding, even when all else is equal, so the question would be whether the connection has been demonstrated for Lagos. (Dáithí Stone, University of Cape Town)	No.
971	40184	22	73	41	73	41	poor unit of measurement, the depth of water will be determined by the height of the knee, which is person-variable (Peter Burt, University of Greenwich)	Noted. This statement has been removed
972	40185	22	73	49	73	49	poor unit of measurement, the depth of water will be determined by the height of the waist, which is person-variable (Peter Burt, University of Greenwich)	Noted. This statement has been removed
973	40186	22	73	54	74	1	why use per cent and %? (Peter Burt, University of Greenwich)	Corrected
974	46382	22	74	0	0	0	22.6.1 should be coordinated with chapter 12 (Etienne Piguet, University of Neuchatel)	This is a case study from Adelekan, 2010
975	40187	22	74	6	74	12	references required (Peter Burt, University of Greenwich)	This is a case study from Adelekan, 2010
976	48643	22	74	6	74	12	Is there any literature to reference here? (Dáithí Stone, University of Cape Town)	This is a case study from Adelekan, 2010
977	51308	22	74	6	74	19	It would be much preferable to provide citations supporting these statements. (Katharine Mach, IPCC WGII TSU)	Corrected
978	40188	22	74	8	74	8	change 'consequence' to 'consequences' (Peter Burt, University of Greenwich)	The case study has been revised.
979	48642	22	74	16	74	18	It sounds like you are referring to a particular study here. Which? (Dáithí Stone, University of Cape Town)	This is a case study from Adelekan, 2010
980	44336	22	74	21	74	21	No conclusion? No discussion of common themes, findings etc? (Emma Archer van Garderen, CSIR)	case studies have been deleted in the final draft
981	48247	22	74	22	0	0	Sections 22.6.1. Climate as a Push Factor – Migration and 22.6.1.1. Migration Drivers. In order to avoid repetition of generic aspects of the theoretical framework on migration and climate change, this generic aspects should be merged with those that are also covered in Chapters 9 and section 18.4.4.2. on Migration. (Jason Garcia-Portilla, University of Sussex)	Agree. This material has been reduced considerably
982	54859	22	74	22	0	0	Section 22.6. The author team should synthesize discussions in this section and present summary of findings. (Monalisa Chatterjee, IPCC WGII TSU)	Section has been reduced and synthesized
983	35113	22	74	24	0	0	"22.6.1. Climate as a Push Factor – Migration" The latest report on disaster displacement is out from IDMC and available at www.internal-displacement.org There is also an upcoming publication presenting and exploring some experiences of drought and cross-border displacement as well as policy responses in connection with the 2011 drought and famine in Somalia, see Kolmannskog and Ramstad, Experiences of drought and displacement: Case study of Somalis displaced to Kenya and Egypt due to the 2011 drought, in Climate Change Monitoring and Vulnerability Assessment in Africa (book commissioned by Haramaya University, Ethiopia, scheduled to be published in 2012 by the CAB International publishers). (Vikram Kolmannskog, Norwegian Refugee Council)	Thank you for these references.
984	48650	22	74	24	0	0	Is there no discussion at the moment of climate as a pull factor? My understanding is that most of the migration in Africa at the moment is rural-urban, and that in turn most of that is not of people being pushed out of the country but rather being pulled by the economic opportunities of the city (as double-edged as they might be). Might climate change similarly pull people to places, rather than simply pushing them away from other places? (Dáithí Stone, University of Cape Town)	Yes, there is such discussion. The heading that restricted the section to "Push Factors" has been amended; section had to be reduced substantially
985	36166	22	74	24	74	24	Climate Change is proving to be not only a push factor, but also a threat-multiplier. Perhaps nowhere this is more apparent as in the Greater Horn of Africa, where persistent droughts/famine have lead to many environmental refugees creating the largest Refugee camp in an already vulnerable, conflict-prone area. (Richard Anyah, University of Connecticut)	Agree.
986	46383	22	74	26	74	36	This § is superficial in comparison with chapter 12.4 - some sources a not first hand science (US National Intelligence Council). (Etienne Piguet, University of Neuchatel)	US National Intelligence Council has been deleted. Chapter 12 can give a much more detailed perspective.
987	40189	22	74	28	74	28	insert 'a' before 'legal' (Peter Burt, University of Greenwich)	Sentence has been deleted.
988	40190	22	74	33	74	33	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	Sentence has been deleted.
989	48647	22	74	34	0	0	Do you mean "may not apply" rather than "may apply"? (Dáithí Stone, University of Cape Town)	Sentence has been deleted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
990	46263	22	74	38	0	50	An example only including internally displaced persons. Is there any development in creating a legal structure that recognizes environmental refugees who flee internationally? What are the obstacles in addressing an international standard for the rights of climate refugees? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	There is development in creating a legal structure, see e.g. Hodgkinson & Young (2012) "In the face of looming catastrophe": A convention for climate change displaced persons www.ccdpconvention.com. Unfortunately the limited space available does not allow to go into the details and legal problems related to people who migrate across borders. Reference is however made in the SOD to the important article by Kälin and Schrepfer, which addresses these challenges
991	40191	22	74	52	74	53	why single these ones out for listing? Better to give all signatories or no details (just a supporting reference) (Peter Burt, University of Greenwich)	Agree. Sentence has been deleted anyhow
992	40192	22	75	10	75	10	delete , (Peter Burt, University of Greenwich)	You may be right. Has not been queried by language editor.
993	46384	22	75	11	75	11	The precision of these numbers is absurd (697'066...) (Etienne Piguet, University of Neuchatel)	Yes, but that is the number given in the report quoted.
994	40193	22	75	12	75	12	change '1,1' to '1.1' and '1,7' to '1.7' (Peter Burt, University of Greenwich)	has been done
995	40194	22	75	28	75	28	change 'for' to 'of' (Peter Burt, University of Greenwich)	Sentence has been deleted.
996	46385	22	75	41	75	42	Does this non-peer reviewed result deserve to be reported here with such precision ? (Etienne Piguet, University of Neuchatel)	We are using this reference more broadly in the final draft.
997	46264	22	75	53	0	0	Very beneficial to differentiate between the two definitions - mobility and displacement. Is this a new distinction? Was it created in part to distinguish between migrants who are forced to flee because of environmental conditions and those who flee in hope of finding better environmental conditions? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Unfortunately this had to be deleted due to the lack of space. For further details see Foresight 2011.
998	48244	22	76	8	76	9	The statement "most of the world's population are not and do not want to be migrants because they lack the resources to move" is misleading as there is no sufficient empirical evidence to determine such association. Although it is clear that human resources may be required to participate in migration, ability to migrate is critically dependent on other personal characteristics such as age, gender or disability (Foresight 2011). (Jason Garcia-Portilla, University of Sussex)	Sentence has been deleted.
999	51309	22	76	12	76	12	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Sentence has been deleted.
1000	46265	22	76	33	0	34	Biofuel projects and forest conservation projects are solutions to combat climate change, so need more context as to how these projects could force displacement of indigenous and local people? Do not understand connection. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Sentence has been deleted.
1001	51310	22	76	38	0	0	Section 22.6.1.2. Revision of this section should aim to reduce the length by well over 50%. (Katharine Mach, IPCC WGII TSU)	I have incorporated this suggestion.
1002	40195	22	76	40	76	40	insert 'An' or 'The' before 'Empirical' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1003	40196	22	76	45	76	45	delete 'is' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1004	40197	22	76	47	76	47	delete , after 'Niger' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1005	40198	22	76	54	76	54	insert 'to' before 'small' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1006	40199	22	77	7	77	7	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	Agree. To be deleted in final draft
1007	40200	22	77	9	77	9	I doubt the people are connected to the sewers! I think you mean 'have access to' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1008	40201	22	77	13	77	13	insert 'be' after 'will' and change 'exacerbate' to 'exacerbated' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1009	48648	22	77	20	0	0	Uninhabitable? (Dáithí Stone, University of Cape Town)	Deleted
1010	40202	22	77	24	77	24	delete 'respectively' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1011	51311	22	77	28	77	28	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Sentence has been deleted.
1012	51312	22	77	28	77	28	For the changes in extreme events described here and on line 38, the author team should ensure an appropriately qualified and conditional framing, reflecting with nuance understanding of which extreme events are projected to be altered in their occurrence due to climate change. (Katharine Mach, IPCC WGII TSU)	respective passages have been deleted
1013	40203	22	77	40	77	40	delete , after 'grids' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1014	44337	22	77	47	77	48	This statement is somewhat in contrast to what is said in previous pages about the evidence base. (Emma Archer van Garderen, CSIR)	Sentence has been deleted.
1015	46266	22	78	9	0	10	Another example as to why rights of internal and international climate refugees needs to be addressed. Is there any discussion, or lack there of, that can be talked about? Any thing recent from discussions about including environmental refugees in the Universal Declaration of Human Rights, or discussion from UN Human Rights Council, or any organization of that nature? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Sentence has been deleted.
1016	40204	22	78	16	78	16	quantify 'recent decades' (Peter Burt, University of Greenwich)	Sentence has been deleted.
1017	40205	22	78	30	78	30	vulnerable to what? (Peter Burt, University of Greenwich)	Sentence has been deleted.
1018	48649	22	78	32	78	33	Has climate change been detected in Somalia? (Dáithí Stone, University of Cape Town)	Sentence has been deleted.
1019	51313	22	79	5	0	0	Section 22.6.2. The author team may wish to consider if this section should be developed or if its deletion would be a preferable option. (Katharine Mach, IPCC WGII TSU)	The section was not further developed in the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1020	51314	22	79	10	0	0	Section 22.6.3. Revision of this section should aim to reduce its length by over 50% and tighten presentation of assessment. (Katharine Mach, IPCC WGII TSU)	This section has been deleted from here and integrated with section 22.3.2
1021	54860	22	79	10	0	0	Section 22.6.3. The author team should synthesize discussions in this section and present summary of findings. (Monalisa Chatterjee, IPCC WGII TSU)	This section has been deleted from here and integrated with section 22.3.2
1022	40206	22	79	10	79	10	REDD+ = ? (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1023	44338	22	79	10	81	9	This section is fragmented, and discontinuous in places - it needs a careful edit. It is a fascinating topic, so it would be a pity if it did not read well as a section. (Emma Archer van Garderen, CSIR)	This section has been deleted from here and integrated with section 22.3.2
1024	46267	22	79	18	0	0	How are slope, soil quality and presence or absence of a stream non-climate drivers? All of those elements are affected by climate. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been revised.
1025	40207	22	79	22	79	23	a deforestation rate of - 0.49% is a negative loss (ie a growth). Do you mean this? (Peter Burt, University of Greenwich)	This represents annual change rate (%). Corrected in this draft.
1026	46268	22	79	30	0	31	Is none of the trends are attributed to REDD+, what are the successes of REDD+? Is there data that is more recent than 2006? What does motivate the trends if not incentives of REDD+? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	New references have been added.
1027	40208	22	79	36	79	36	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1028	40209	22	80	9	80	9	don't use 'etc', it is imprecise and tells the reader nothing! (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1029	40210	22	80	9	80	9	insert 'a' after 'Under' (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1030	46269	22	80	28	0	29	What role does land ownership play in climate change adaptation? Are property rights properly defined in most areas of Africa? What type of ownership is most effective for implementing adaptation policies: state, individual, community? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The draft mentions issues of ownership in few places but it is an important point and we will consider more strongly in the final draft.
1031	40211	22	80	28	80	28	insert 'is' after 1st 'and' (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1032	40212	22	80	33	80	33	insert 'by' after 'made' (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1033	40213	22	80	49	80	49	insert 'a' after 'Therefore,' (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1034	40214	22	81	1	81	1	insert 'to' after 'continue' (Peter Burt, University of Greenwich)	This section has been deleted from here and integrated with section 22.3.2
1035	46270	22	81	10	0	0	I know that making the document reader-friendly is not a priority, but there is no context or definition of REDD or REDD+ throughout the entire section. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	the section has been integrated with adaptation
1036	40215	22	81	14	81	14	delete 'type' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1037	40216	22	81	15	81	15	change 'are' to 'is' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1038	40217	22	81	18	81	20	reference required (Peter Burt, University of Greenwich)	Sentence has been deleted.
1039	46271	22	81	20	0	25	How does this relate to African land and water grabs? What are the negative consequences of private sector investment? Is this a symbiotic relationship - how much does outside investment benefit African energy security needs? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Good points but beyond the scope of this chapter given its extreme space constraints.
1040	40219	22	81	22	81	25	reference required (Peter Burt, University of Greenwich)	Sentence has been deleted.
1041	40218	22	81	23	81	23	change 'are' to 'is' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1042	40220	22	81	31	81	31	insert 'for' before 'women' (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1043	40221	22	81	33	81	33	move 'fully' to after 'understand' to remove split infinitive (Peter Burt, University of Greenwich)	I have incorporated this suggestion.
1044	40222	22	81	54	81	54	genus/species should be in italics (Peter Burt, University of Greenwich)	Agreed. The report editors will see to this.
1045	46272	22	82	10	0	0	Possible Box could be added that explores the benefits of biofuels for cooking including: benefits for women and children health because of reduced air pollution, lessen reliance on wood for wood-stove cooking, and creates economic opportunity for women to create own biofuels and educate and sell to others in their communities. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	due to space constraints we have not been able to do this.
1046	51315	22	82	12	0	0	Section 22.6.5. The author team should consider combining this section with 22.4.3.6. (Katharine Mach, IPCC WGII TSU)	Text has been moved accordingly.
1047	44339	22	82	12	83	12	Need to link this to earlier sections where this concept was discussed. (Emma Archer van Garderen, CSIR)	Box on EBA has been moved to relevant section in section 22.4 on Adaptation.
1048	36750	22	82	12	84	47	The text here is again about adaptation. It is better to combine the text with Section 22.4 Adaptation in Africa (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Text has been included in section 22.4 on Adaptation
1049	40223	22	82	32	82	32	reference required (Peter Burt, University of Greenwich)	Reference was the one in the next sentence: these sentences have now been combined and the reference is clear.
1050	40224	22	82	42	82	42	Insert . after 'ecosystems' and start new sentence (Peter Burt, University of Greenwich)	Comment not accepted - stylistic point.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1051	40225	22	83	1	83	1	delete , after 'Sudan' (Peter Burt, University of Greenwich)	Comment unclear, seems to be a stylistic point, change not made.
1052	46273	22	83	12	0	0	What forms of enforcement are available? Is there some sort of regulatory system that has worked well somewhere in Africa? Need to address the obstacle of ensuring sustainable use of resources through actual enforcement. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Comment not addressed due to insufficient space - unable to go into this level of detail.
1053	51316	22	83	15	0	0	Section 22.6.6. The author team may wish to consider if this section should be developed or if its deletion would be a preferable option. (Katharine Mach, IPCC WGII TSU)	The section has been developed in the SOD and information has been integrated from differend FOD subsections so that the overall length of the chapter could be reduced considerably.
1054	41449	22	83	20	0	0	this section does not include any evidence of mismanagement of climate funds, only refers to the potential challenge; it is therefore totally inadequate as of as now to highlight the issue of mismanagement in the executive summary (Sven Harmeling, Germanwatch)	Section has been rewritten
1055	44340	22	83	20	83	30	Suggest link this to earlier section where climate finance was discussed - and make more comprehensive, in addition. A little thin, as it stands. (Emma Archer van Garderen, CSIR)	Section has been rewritten
1056	45384	22	83	22	0	23	Mismanagement and misuse of funds transferred to developing countries (...) is a serious challenge' This sentence is unclear. Are mismanagement and misuse a problem; is it a challenge to overcome mismanagement and misuse, or is it a challenge to prevent it? Is it already happening or not? (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
1057	40226	22	83	22	83	30	references required (Peter Burt, University of Greenwich)	Section has been rewritten
1058	45385	22	83	25	0	0	Are meant (by the donors/UNFCCC/...) or should be (according to the climate finance community/UNFCCC/IPCC/...)? (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
1059	45386	22	83	27	0	0	What does high degree mean? Please provide figures to build this statement on, or leave it out. (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
1060	45387	22	83	27	0	28	with regard to climate finance and adaptation funds' Adaptation funds are part of 'climate finance'. Is there a particular reason to separate the two (and mention adaptation funds separately), instead of mentioning 'adaptation finance'? The background of this question is: where in the internationally financed adaptation projects does it go wrong? (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
1061	45388	22	83	29	0	30	adaptation funds are often provided to national governments that may or may not direct the funds to the most vulnerable'. This problem does not only caused by these national governments. It relates to them having an accountability upwards (to the donor) rather than to the most vulnerable people at the local level (see Pauw, Ayers and Kaere (2012). The international architecture of climate adaptation finance and its implications for African institutions. This will be published in the IDRC/Springer book 'Adapting Institutions to Climate Change: Can Africa Meet the Challenges?' edited by Fatima Denton, probably in Sept 2012. (Willem Pieter Pauw, German Development Institute (DIE))	Section has been rewritten
1062	36767	22	83	33	0	0	Section 22.7 Cross Cutting Themes only has one sub-section. The sub-heading 22.7.1 should be deleted. In general, this section is very brief and does not seem to have much to say. It could be combined with Section 22.4. Adaptation in Africa. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1063	54861	22	83	33	0	0	Section 22.7. The author may wish to integrate material from this section with section 22.4.2.5. or vice versa to reduce overlaps. (Monalisa Chatterjee, IPCC WGII TSU)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1064	51317	22	83	33	83	35	It may make most sense to combine these 2 section titles into one. (Katharine Mach, IPCC WGII TSU)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1065	44341	22	83	35	84	47	Suggest also link to earlier section where a rights based approach to adaptation was discussed. (Emma Archer van Garderen, CSIR)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1066	40227	22	84	3	84	3	please provide reference for International Bill of Rights (Peter Burt, University of Greenwich)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1067	40228	22	84	20	84	20	please provide reference for Beijing Declaration (Peter Burt, University of Greenwich)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1068	40229	22	84	32	84	32	inter alia in italics (Peter Burt, University of Greenwich)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1069	40230	22	84	43	84	43	please provide reference for Declaration (Peter Burt, University of Greenwich)	Section has been deleted and some of the information integrated into the section on vulnerabilities and impacts
1070	44342	22	84	50	84	50	An introduction here on how the research gaps were identified, and to provide flow to the rest of the chapter would be extremely useful. (Emma Archer van Garderen, CSIR)	added in the final draft
1071	36751	22	84	50	85	32	Section 22.8 Research Gaps should include all the gaps, not just adaptation gaps as presented in the text. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	added in the final draft

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1072	48652	22	84	50	85	32	Something that strikes me in these two lists is that there is nothing about quality or relevance of climate (as in meteorological) information or its incorporation into risk estimation, and nothing about how global mitigation efforts may impact Africa. Is this because you believe they are relatively well understood versus those very challenging questions you list (even if they are still poorly understood in an absolute sense)? Or that they are actually not that important in the African context (e.g. it doesn't matter which way the climate changes, the key is simply to reduce vulnerability and exposure)? Or that you believe it is not in the remit of this chapter in WGII (although I had thought these regional chapters were to be WGII-anchored cross-WG regional syntheses)? (Dáithí Stone, University of Cape Town)	added in the final draft
1073	48651	22	85	14	0	0	I realise that the order of these is to some degree random, but nevertheless in my mind I would have put monitoring adaptation at the top of the list. (Dáithí Stone, University of Cape Town)	This section has been updated
1074	46274	22	85	15	0	0	Is anything going to be done with the research gaps or is it more of an assessment of places that need work and/or don't have enough data? All of the gaps are important to address but I think the most important gaps are: understanding the need for women in decision making, integrating a differentiated view of poverty in context of climate change, and addressing methods to analyze vulnerability and the complex interactions between all of the aspects that influence migration and obstacles in adaptation. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been updated
1075	36167	22	85	15	86	15	Should add as Research gap: Development of integrated decision making tools that can enhance adaptation at the local level, where multiple stressors are often in play. Also Adaptation plans should have built-in flexibility to entrain new science and information to create an ongoing but appropriate adaptation strategies. (Richard Anyah, University of Connecticut)	This section has been updated
1076	46275	22	85	17	0	32	Most all questions address overcoming barriers - from your experience in Africa - what are the largest barriers, whether to adaptation or social and cognitive obstacles? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	This section has been updated
1077	51318	22	85	35	0	0	Section 22.9. In further developing this section, the author team should ensure concise presentation of information here in a way that differs from presentation in the executive summary. Providing line-of-sight references to supporting chapter sections is important for conclusions characterized here. (Katharine Mach, IPCC WGII TSU)	It has been preliminary decided not to have a Conclusions section in the Chapter
1078	46276	22	85	43	0	44	Throughout all discussion of migration there is talk of the positive role of migration. I don't think this idea is developed enough because migration is mainly presented as a reality and a catalyst for "humanitarian emergencies." There are no real examples of migration as a positive experience. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Thank you for making this valuable point. The intention was to emphasise that there is a positive aspect with regard to adaptation. However, the humanitarian problems related to climate change induced migration cannot be underestimated, which should be clear from 22.3.6.3. of the SOD
1079	42645	22	85	44	85	47	This should note the distinction between migration and mobility; mobility in pastoral regions is a local adaptation to rainfall variance and does not necessarily cause environmental degradation. (Erin Coughlan, Red Cross / Red Crescent Climate Centre)	Agree, such distinction can be considered for the main text, but difficult to address in a summarized statement such as a FAQ
1080	48653	22	85	48	85	49	Empowering the drivers of environmental change? (Dáithí Stone, University of Cape Town)	word revised
1081	35916	22	86	1	86	8	Though not verified, Climate change could also affect food availability through shifts in the flowering and fruiting season of NTFPs and other fruit trees, less forage for livestock, poor seed dispersal and distortion of the ecosystem due to disappearance of wildlife and game resources following harsh climatic conditions. (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	This is a very valid statement. However, there are no studies available that make the link between climate change, food availability and the loss of these important ecosystem attributes.
1082	46277	22	86	2	0	0	Are "quality" and nutrition interchangeable? If not, nutrition should be added as an element of food security. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	The four elements of food security are availability, access, utilization and stability.
1083	48654	22	86	9	0	0	The urban poor? Presumably the rural poor, who as a gross generality are most often involved in agriculture, would be receiving higher compensation for their produce. (Dáithí Stone, University of Cape Town)	Actually the rural poor are as a general trend are becoming increasingly net food purchasers. High food prices affect them negatively during times of the year when they purchase foods, such as during the hunger season preceding crop harvests.
1084	46278	22	86	14	0	0	What is meant by "food acceptability"? (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	Cultural acceptability of food.
1085	46279	22	86	29	0	0	Is the first assessment that has placed such a large emphasis on gender issues? I am very impressed with how much language on gender-sensitive approaches there is in AR5. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	No response is needed to this comment.
1086	42843	22	86	31	86	32	Amongst the most important constraint are institutional set-ups that favor sectoral and centralized decision making (rather than participatory, integrated processes required by adaptation), and institutional fragmentation of both CCA and DRR institutions, as well as climate information services. (Sofia Bettencourt, World Bank)	This aspect of institutional constraints has been highlighted in several places in the chapter.
1087	46280	22	86	35	0	0	I think this question is the most important to answer out of all three. (Danielle Nierenberg, Nourishing the Planet--Worldwatch Institute)	FAQs have been revised
1088	48655	22	86	35	86	37	I'd vote for the first question. I'm not sure there is much to say about the second question, although maybe that would be the point. (Dáithí Stone, University of Cape Town)	FAQs have been revised
1089	36736	22	86	40	125	29	There are too many references, relative to the length of the assessment, 40 pages! May need to drop some less important ones. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Given the attempt of the chapter to provide a synthesis of the most relevant literature on climate change impacts, adaptation and vulnerabilities in Africa, the length of the reference list seems justified.
1090	35919	22	90	19	90	22	citation: Bele, M.Y., Olufunso Somorin, Denis Jean Sonwa, Johnson Ndi Nkem & Bruno Locatelli (2011) Forests and climate change adaptation policies in Cameroon Mitig Adapt Strateg Glob Change 16:369–385 DOI 10.1007/s11027-010-9264-8 (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	Reference was corrected

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1091	52309	22	110	47	0	0	Please harmonise the reference "NIANG, I., DANSOKHO, M., FAYE, S., GUEYE, K., NDIAYE, P. (2010). Impacts of climate change on the Senegalese coastal zones: Examples of the Cape Verde peninsula and Saloum estuary. Global Planet. Change, Amsterdam, Vol 72(4), 294-301, 5 fig., 5 tab."; all capital letter should be replaced by lowercase letter (Jacques Andre NDIONE, Centre de Suivi Ecologique)	Reference was corrected
1092	36737	22	126	0	0	0	Need to add tables to provide summaries of the latest projections of climate change, and impacts on various aspects for individual regions, major rivers and lakes. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Figures 22.1, 22.2 and 22.7 have been added but we will consider adding tables as per your suggestions in the final draft.
1093	36753	22	126	0	0	0	Table 22-1. The regional entities based on the African Union division do not reflect the geographical units and similarities in natural and climate conditions. Such a division may be not appropriate for this assessment because of the significant discrepancies within each region (defined by the African Union). It may be more appropriate to use the geographical regions for the regional division for natural and climate integrity of each region. In Table 22-1, a same country is often appeared in different regions. E.g., Egypt is in CEN-SAD and COMESA, Kenya is in COMESA and IGAD, CHA is in CEN-SAD and ECCAS, etc. It is not clear if these countries really belong to different regions or they are simply because of the mistakes of the authors. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This table was deleted.
1094	36754	22	126	0	0	0	Table 22-2. The table should provide the information from a broader coverage of the regions. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	We did not have comparable studies to integrate in this table
1095	35917	22	127	0	0	0	Table 22-4: where - Cameroon Barrier mentioned: Lack of transparency, No effective participation of indigenous and local people, disregard of issues on land tenure, customary rights and benefit sharing citation: Dkamela, G.P. (2010) The context of REDD+ in Cameroon: Drivers, agents and institutions. Occasional paper 57. CIFOR, Bogor, Indonesia. (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	I have incorporated this suggestion.
1096	35918	22	127	0	0	0	Table 22-4: Elite class and patron centered approach or the need for a political entrepreneur to mainstream climate change actions into natural resource management strategies citation: Mekou Youssoufa Bele, Olufunso Somorin, Denis Jean Sonwa, Johnson Ndi Nkem & Bruno Locatelli (2011) Forests and climate change adaptation policies in Cameroon Mitig Adapt Strateg Glob Change 16:369-385 DOI 10.1007/s11027-010-9264-8 (Precillia Ijang Tata epouse Ngome, Institute of Agricultural Research for Development)	I have incorporated this suggestion.
1097	36738	22	127	0	0	0	Table 22-4 needs to provide a more complete summary of the barriers and limits to adaptation in Africa (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Table has been deleted, additional text and synthesis has been added.
1098	36739	22	127	0	0	0	Table 22.5 needs to provide specific information for Africa. The global summary should not be included here, but in the global assessment. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Table has been deleted.
1099	36755	22	128	0	0	0	Figure 22-1. Africa is divided into 8 regions in Table 22-1. Here in Figure 22-1, the regions should be consistent with those in Table 22-1. COI is not defined in the table. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Table 22.1 has been deleted and the figure has been revised.
1100	53992	22	128	0	136	0	Since all figures provided in the chapter are drawn directly from other sources, the author team may consider reconstructing some of the figures particularly to reflect the discussions in this assessment report. For instance, figures 22-3, 4, 5 may be combined to create a figure something similar to Figure 9-1 of AR4. Figure 22-12 and 13 could be modified to capture the most applicable part of the existing figures. Figures on Kilimanjaro may be combined (and perhaps simplified) and could be included in a box as a case study? (Yuka Estrada, IPCC WGII TSU)	Some new synthetic figures have been added. Several Kilimanjaro figures have been deleted.
1101	36740	22	129	0	0	0	The authors should provide Figures to show the spatial variations concerning climate changes and impacts on various aspects in different regions. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	Figure 22.1, 22.5 show spatial variations.
1102	36741	22	129	0	0	0	Figure 22-2. The information presented in the Figure is not very clear. E.g., what is the situation for droughts in Sahel? The text in Section 22.3 (page 11, lines 26-36) needs to elaborate the information in Figure 22-2. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This figure has been revised. Please see new figure 22.3.
1103	51319	22	129	0	0	0	Figure 22-2. By the 2nd-order draft, the author team should depict all of the changes indicated in the right-hand column within the plot (or clarify in the figure caption why particular changes are not plotted). (Katharine Mach, IPCC WGII TSU)	This figure has been revised. Please see new figure 22.3.
1104	52310	22	129	0	0	0	Figure 22-2: the legend should be adjusted to content of this figure: for example, where do we find ECOWAS with regards to regional temperature increases? (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This figure has been revised. Please see new figure 22.3. We have added more description in the caption.
1105	53986	22	129	0	0	0	Figure 22-3: There is no reference to this figure in the text. (Yuka Estrada, IPCC WGII TSU)	Reference in the text has been added
1106	36742	22	130	0	0	0	Figure 22-4 is a global picture. It may be included in the global assessment, but not in the African assessment. What is needed here is the sub-continental or country level information on the changes in forested areas. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This figure has been deleted in the new version of the chapter
1107	36756	22	130	0	0	0	Figure 22-4. Instead of providing the global situation concerning the forest area changes, it should give the information on the regions within Africa. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This figure has been deleted in the new version of the chapter
1108	52311	22	130	0	0	0	Figure 22-4: please harmonise the Y axis (+5 to -5) (Jacques Andre NDIONE, Centre de Suivi Ecologique)	This figure has been deleted in the new version of the chapter
1109	53987	22	130	0	0	0	Figure 22-4: There is no reference to this figure in the text. (Yuka Estrada, IPCC WGII TSU)	This figure has been deleted in the new version of the chapter
1110	51320	22	130	0	0	0	Figure 22-5. For panel a of this figure, it would be helpful to indicate further the relevant GCMs and emissions scenarios used in the analysis and the baseline timeframe from which changes are assessed. Additionally, it would be helpful to specify what is meant by "worst-case." (Katharine Mach, IPCC WGII TSU)	GCMs, emissions scenarios, time periods, and an explanation of "worst-case" have been added.
1111	36757	22	131	0	0	0	Figure 22-6. The figure needs to be reformatted for proper presentation. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	The figure has been changed into a table. Please see table 22.1

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1112	53988	22	131	0	0	0	Figure 22-6: The information provided here would be better presented as a table than figure. (Yuka Estrada, IPCC WGII TSU)	The figure has been changed into a table. Please see table 22.1
1113	53989	22	132	0	0	0	Figure 22-7: It would be helpful for readers to have the further explanations of each scenario used in legend in caption. (Yuka Estrada, IPCC WGII TSU)	will be finalised in final draft
1114	53990	22	132	0	0	0	Figure 22-8: It would be helpful for readers to have the further explanations of each scenario used in the legend in the caption. (Yuka Estrada, IPCC WGII TSU)	better version will be developed.
1115	51321	22	133	0	0	0	Figure 22-9. It would be helpful to specify how panels A-C of this figure differ. Additionally, for panel A, is there a trend that is significant if 1900-15 is removed? (Katharine Mach, IPCC WGII TSU)	I did so. There is no significant trend if 1900-1915 is removed.
1116	52312	22	133	0	0	0	Figure 22-9: please complete the title because we don't know to what these three capitals letters (A, B and C) refer? Probably, they refer to rainfall station, but which ones? (Jacques Andre NDIONE, Centre de Suivi Ecologique)	I have incorporated this suggestion.
1117	53991	22	133	0	0	0	Figure 22-9: It needs clarification on what each panels is showing. (Yuka Estrada, IPCC WGII TSU)	I have incorporated this suggestion.
1118	36758	22	135	0	0	0	Figure 22-12. This Figure is not necessary as it does not provide pertinent information concerning the climate change and impact in Africa. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	I did not include this figure
1119	51322	22	135	0	0	0	Figure 22-11. For this figure, it would be helpful to specify what the different colors signify within the pie charts presented. (Katharine Mach, IPCC WGII TSU)	I have incorporated this suggestion.
1120	36759	22	136	0	0	0	Figure 22-13. This Figure is not necessary as it is just a generic schematic flow chat concerning ecosystem-based adaptation, which is not specific to Africa. (Hong Yang, Swiss Federal Institute for Aquatic Science and Technology (Eawag))	This figure has been deleted and anew figure 22.8 has been added in its place.