

#	Ch	From Page	From Line	To Page	To Line	Comment
1	22	0	0	0	0	This chapter is important to African countries, and frankly speaking, I found it very impressive and was prepared with high quality. The part of observed climate trends and future projections for temperature, precipitation & extreme events is impressive part, especially Figure 22-1 (page 97) for the observed & simulated variations in past and projected future annual average precipitation & temperature. Also, Figure 22-2 (page 98) for observed & simulated variations in past & projected future annual average precipitation & temperature for 5 African countries. Section 22.3. (page 99) for vulnerability & impacts presents how Africa is vulnerable and Figure 22-3 summarizes the main conclusions in this regard. Figure 22-5 (page 100) for the potential change in vegetation between the periods 1961-1990 and 2071-2100 is very impressive. The part of freshwater ecosystem is very good (page 15) using lot of references, and Table 22-1 (page 95) presents the changes & impacts observed in freshwater lakes of Africa. Part of coastal & ocean systems is impressive especially the item of the impacts & vulnerability of coastal ecosystem especially Figure 22-6 for Kenya coastal zone (page 101) & Table 22-2 for Cape Town (page 95). Also, parts of water resources, agriculture & food security are impressive too. The parts of health (starting from page 24), human security (page 27) and urbanization (page 29) were prepared with high quality. The adaptation part 22.4. (page 30) is impressive and Table 22-4 (page 96) for the cross-cutting approaches for equity & social justice in adaptation Part of climate risk reduction, risk transfer, & livelihood diversification (page 36) is impressive and Figure 22-7 (page 102) for the risks at different timings is impressive too. The part of ecosystem services, biodiversity, and natural resource management (page 42) was prepared with high quality, and Figure 22-8 (page 103) for ecosystem-based adaptation and Figure 22-9 (page 103) for the cost of adaptation per year from 2000 through 2100 are impressive and used updated references. The part 22.5. for case studies (page 48) and part 22.6. for new emerging issues (page 50) are impressive too. (Labib, Mounir Wahba , Third National Communication (TNC) Project)
2	22	0	0	0	0	The structure of the chapter could be improved. In the section on Observed Climate Trends and Future Projections only changes to temperature and precipitation are discussed, a (short) section on expected change to evaporation (potential/actual) would be useful, plus a subsequent section on changes to runoff (naturalised). In its current form there is some discussion on changes to streamflow in the freshwater ecosystems section which comes before the changes to water resources. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
3	22	0	0	0	0	In several sections the difficulty of drawing conclusions due to lack of data is mentioned. However, in the executive summary there is no mention of the importance of data to underpin the understanding of climate change across the continent. It is well known that data networks in Africa are declining, but also that there the accessibility, sharing and governance of the data that is available is a major challenge. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
4	22	0	0	0	0	We appreciate the inclusion of a FAQ on the significance of migration in the context of CCA in Africa, as well as the FAQ's on food security and violent conflict (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
5	22	0	0	0	0	We agree with the flagging of the need for strategies and plans of actions to adapt, in the executive summary. We especially appreciate the visibility given to EBA, pro-poor integrated adaptation-mitigation initiatives, and emphasis on highly vulnerable groups (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
6	22	0	0	0	0	As written, it is extremely hard to determine which countries are included in which political grouping. Countries should be grouped by climatic covariability, not political region, the groupings made explicit, and the classes named by geographic region. (UNITED STATES OF AMERICA)

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7	22	0	0	0	0	Consider reordering the executive summary starting with more on the key physical changes already observed then going into the major headlines on the biggest human impacts and potential impacts with the most implications - and about which there is also high certainty. (UNITED STATES OF AMERICA)
8	22	0	0	0	0	Coverage of pastoralists should be treated more completely, and the disparate impacts of temperatures on arid lands and lifestyles better represented and discussed. (UNITED STATES OF AMERICA)
9	22	0	0	0	0	In general, the relationship between the text and the figure needs to be improved. For non-experts the meaning of the graphics needs to be explained. (UNITED STATES OF AMERICA)
10	22	0	0	0	0	In terms of the chapter as a whole the whole second half of the chapter on adaptation is noticeably more organised, coherent and better-written and therefore, essentially, more informative than the first part on trends and impacts. (UNITED STATES OF AMERICA)
11	22	0	0	0	0	Making broad generalizations about changes in Africa is difficult, and it appears the authors have tried to break the continent down into essentially three regions. However, even this divide does not capture the nuance of the changes occurring. It might be helpful to add a section or paragraph detailing the difficulties of making predictions for all of Africa, and highlighting some of the nuances that are lost by doing so. Also it would be helpful to know how useful these broad generalizations are for a specific area given that they may be more accurate in some geographical regions and for some variables than for others. (UNITED STATES OF AMERICA)
12	22	0	0	0	0	More attention should be made regarding improving Africa's ability to monitor and analyze its own climate at seasonal and decadal time scales. (UNITED STATES OF AMERICA)
13	22	0	0	0	0	Overall this was an interesting chapter to read. However, it seemed disorganized, and in places repetitive, listing randomly possible impacts, and possible approaches to adaptation. It would benefit from possible restructuring to draw out key themes. In particular, the discussion of different ecosystems is haphazard and repetitive (sections on fisheries, for example, are stated several times can be cut). Some key ecosystems such as mountain regions are missed. The impacts should be summarized by region, even if this is as a box. Right now readers in specific countries will be forced to try to skim the entire section, searching for mention of their region and piece together evidence of climate change or its impacts. The adaption section gives no sense of the priorities for agencies. What is most effective? Given that the impacts are so varied, and still unknown, the focus should be on building resilience. Perhaps the adaption section could be restructured to give a sense of the desired outcomes, rather than focusing on the difference between soft path and hard path options which should in reality both be used Also at times the chapter is simplistic and seems to attribute problems like forest loss or ground water depletion to climate change, possibly without adequate justification. For example page 48 line 53, "A water shortage during dry periods would increase the incidence of power cuts which even now are inhibiting economic growth." Where is the reference or evidence? The power cuts may result from increasing demand for energy (and from growing industry), from bad infrastructure, etc, etc...not just climate change and its impact on water supply. The authors should be careful not to overstretch the evidence but to highlight the complexity and the challenges climate change can pose to decision makers in African countries that do not have funding for infrastructure, development, etc. (UNITED STATES OF AMERICA)

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14	22	0	0	0	0	Regarding the executive summary and chapter 22 as a whole: The structure of the chapter is apparently set to a standard format that might be unalterable. Nevertheless this does not always assist clarity, organization or balance across sections. The executive summary in particular, in following the structure of the main chapter, is problematic in two respects. First, unlike the main chapter, it is not divided by headings or sub-headings but relies on the reader to refer via numerals to the relevant section of the main chapter. At least the executive summary could be split into two sections relating to the two main sections of the chapter, clearly marked, first, "observed climate trends and future projections, vulnerability and impacts" and second, "adaptation in Africa". Second, and more seriously, the structure does not allow the executive summary to pull out and put at the top of the summary those findings of the greatest concern i.e. those with the highest degrees of confidence, impact and implications, especially page 4, lines 13-21, "Recent evidence further strengthens a key findings from AR4" and page 5, lines 26-33, "Human security of people in Africa will increasingly be threatened". (UNITED STATES OF AMERICA)
15	22	0	0	0	0	Studies on attribution are well brought out on page 9 (Tadross etc + funk et al) and those could be used earlier as some - Hoerling, Tadross et al anyway - refer to temperature and aridity too. (UNITED STATES OF AMERICA)
16	22	0	0	0	0	Studies on attribution are well brought out on page 9 (Tadross etc + funk et al) and those could be used earlier as some studies Hoerling et al, Tadross et al anyway - refer to temperature and aridity too. (UNITED STATES OF AMERICA)
17	22	0	0	0	0	The choice of climatic regions should be reconsidered, and certainly need to be better defined. From a climatic perspective, it does not make sense to base the regions on political entities. Previous work that defines homogeneous rainfall areas should be referenced and used. (UNITED STATES OF AMERICA)
18	22	0	0	0	0	The peer-reviewed publications of Dr. Joshua Busby on climate change, vulnerability, conflict and mass death, should be cited in various places throughout the chapter, if possible. Namely, "Locating Climate Insecurity: Where are the Most Vulnerable Places in Africa?" and "Ground Truthing" Vulnerability and Adaptation in Africa." (UNITED STATES OF AMERICA)
19	22	0	0	0	0	The political definitions (e.g. SADC, etc.) that were used to define climate regions were ineffective and did not correspond to regions of natural climatic covariability. One example of a continental regionalization is provided by the work of Sharon Nicholson (http://www.wmo.int/pages/prog/wcp/wcdmp/documents/bams-d-11-00212_dase...). The full countries listed in each region need to be identified at least once (so you don't need to google COMESA). (UNITED STATES OF AMERICA)
20	22	0	0	0	0	The structure of the chapter is apparently set to a standard format that might be unalterable. Nevertheless this does not always assist clarity, organization or balance across sections. The executive summary in particular, in following the structure of the main chapter, is problematic in two respects. First, unlike the main chapter, it is not divided by headings or sub-headings but relies on the reader to refer via numerals to the relevant section of the main chapter. At least the executive summary could be split into two sections relating to the two main sections of the chapter, clearly marked, first, "observed climate trends and future projections, vulnerability and impacts" and second, "adaptation in Africa". (UNITED STATES OF AMERICA)
21	22	0	0	0	0	The treatment of temperature impacts on evapotranspiration could be improved. This does not seem to receive much discussion. (UNITED STATES OF AMERICA)
22	22	0	0	0	0	There is very little specific discussion of future scenarios in non-climatic drivers (e.g. dam building, land use change, population growth) and their impact on the hydrologic cycle and water resources. (UNITED STATES OF AMERICA)
23	22	0	0	0	0	There is virtually no discussion of water quality issues (including stream temperature increases) - perhaps this is a reflection of the lack of research on this topic for Africa (and in general), especially regarding the linkages between climate change projections and water quality issues. (UNITED STATES OF AMERICA)

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24	22	0	0	0	0	There needs to a more emphatic treatment of expected crop impacts, stalled agricultural and water development activities, and population growth. (UNITED STATES OF AMERICA)
25	22	0	0	0	0	"there should be consistency in the usage of terms. For example the use of near-surface and surface. What is the difference between the two" (UNITED REPUBLIC OF TANZANIA)
26	22	0	0	0	0	Congrats on good chapter. It was a very interesting read. (van der Geest, Kees, United Nations University)
27	22	0	0	0	0	This has progressed a long long long way since the ZOD! Kudos. (Stone, Dáithí, University of Cape Town)
28	22	0	0	0	0	Many statements throughout the first half of the chapter centre around the words "could" or "may". Maybe these statements could be possible, but generally there is nothing in them to indicate that the opposite could not be equally possible. (Stone, Dáithí, University of Cape Town)
29	22	0	0	0	0	I am surprised at how little discussion there is about the effect of heat stress on the populace of a (the?) hot continent where most people work (and in some cases live) outdoors. Perhaps there is little literature, but this issue should be highlighted. Some coordination with Chapter 11 would be appropriate; note their Box 11-2, Figure 11-2, and 11.6.2.2. (Stone, Dáithí, University of Cape Town)
30	22	0	0	0	0	Overall, the report is much improved from its earlier draft; however, some sections could be strengthened (Castro, A. Peter, Maxwell School, Syracuse University)
31	22	0	0	0	0	There are some missing/ incorrect citations in the chapter. These discrepancies have been highlighted in the ref check document for chapter 22 and is available in the supporting material web page. Chapter team may wish to rectify these errors before starting to work on SOD revisions and FGD preparation. (Chatterjee, Monalisa, IPCC WGII TSU)
32	22	0	0	0	0	Author team should ensure that calibrated uncertainty language is used only to make probabilistic statements. (Chatterjee, Monalisa, IPCC WGII TSU)
33	22	0	0	0	0	the chapter should be further condensed by reducing repetitive discussions in section 22.3.2 on water ecosystems and resources, 22.3.2.3 and 22.3.7. The adaptation section should also be reduced by removing repetitions. (Chatterjee, Monalisa, IPCC WGII TSU)
34	22	0	0	0	0	Authors should coordinate with chapters 12 and 19 to ensure consistent message on human security section 22.3.6.2 (Chatterjee, Monalisa, IPCC WGII TSU)
35	22	0	0	0	0	The chapter has rich discussions on several interdependent topics. For FGD preparation, authors may wish to synthesize key messages in tables or in form of other synthetic elements as 'finding rich capsules' that people can use from this assessment. (Chatterjee, Monalisa, IPCC WGII TSU)
36	22	0	0	0	0	1) Overall -- The chapter team has developed a strong assessment in its 2nd-order draft. In the final draft, the chapter team is encouraged to continue its prioritization of compact and rigorous assessment, effective and comprehensive tables and figures, and high specificity in examples given. (Mach, Katharine, IPCC WGII TSU)
37	22	0	0	0	0	2) Coordination across Working Group II -- In developing the final draft of the chapter, the chapter team should continue to ensure coordinated assessment, both in the chapter text and at the level of key findings. As appropriate, cross-references to the sections of other chapters and/or their assessment findings should be used, reducing overlaps and harmonizing assessment. (Mach, Katharine, IPCC WGII TSU)
38	22	0	0	0	0	3) Harmonization with the Working Group I contribution to the AR5 -- In developing the final draft, the chapter team should also ensure all cross references to the Working Group I contribution are updated, with discussion of climate, climate change, and climate extremes referencing the assessment findings in that volume. (Mach, Katharine, IPCC WGII TSU)
39	22	0	0	0	0	4) Tightening and shortening the chapter's assessment -- In developing the final chapter draft, shortening the text should be a top priority. The chapter team should aim for 35 pages in the main body of the chapter text, as an ideal length of the chapter, tightening and polishing the text into a compelling assessment throughout. (Mach, Katharine, IPCC WGII TSU)

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40	22	0	0	0	0	5) Characterization of future risks -- In characterizing future risks for Africa, to the degree appropriate the chapter team should indicate the extent to which risks (or key risks) can be reduced through mitigation, adaptation, development, poverty reduction, etc. That is, is it possible to indicate how risks may increase as the level of climate change increases or, potentially, to indicate the relative importance of changes in mean conditions, as compared to changes in extreme events, as compared to potential non-linear changes associated with biome shifts or tipping points? And then, how much can risks be reduced through adaptation or development, in the near-term and long-term? How are factors or stressors that multiply risks relevant in this context? As supported by its assessment of the literature, the author team should consider communicating risks for the era of climate responsibility (the next few decades, for which projected temperatures do not vary substantially across socioeconomic/climate scenarios) and for the era of climate options (the 2nd half of the 21st century and beyond). As might be helpful to the chapter, the framing of table SPM.4 could be considered in characterization of future risks, along with the key and emergent risk typology of chapter 19. (Mach, Katharine, IPCC WGII TSU)
41	22	0	0	0	0	6) Informing the summary products -- To support robust and insightful summary products for the report, the chapter team is encouraged to maximize nuance and traceability in its key findings, continuing to use calibrated uncertainty language. In addition to nuanced characterization of future risks (see the previous comment), the chapter team is encouraged to consider themes emerging across chapters, indicating for example how extreme events have demonstrated adaptation deficits and vulnerabilities to date and may relate to future risks, how limits to adaptation may be relevant in the context of this chapter, how multidimensional inequality is relevant in the context of climate change, how adaptation experience has been relevant to date, and how interactions among mitigation, adaptation, and sustainable development may occur. (Mach, Katharine, IPCC WGII TSU)
42	22	0	0	0	0	7) Report release -- The chapter team should be aware that the final drafts of the chapters will be posted publicly at the time of the SPM release, before final copyediting has occurred. Thus, the chapter team is encouraged to continue its careful attention to refined syntax and perfected referencing. (Mach, Katharine, IPCC WGII TSU)
43	22	0	0	0	0	8) Policy neutrality -- Given the mandate of providing a policy relevant and policy neutral assessment, the chapter team should reconsider use of phrases such as "need" and "required" throughout the chapter. Avoiding potential interpretations of policy prescription should be a priority, recognizing that there are often opportunities to avoid potentially prescriptive language while also enhancing the richness of detail in statements. (Mach, Katharine, IPCC WGII TSU)
44	22	0	0	0	0	GENERAL COMMENTS: I congratulate the author team for all their work on the SOD, recognizing that there is more work to be done. The chapter would greatly benefit from an edit aimed at tightening the discussions significantly, and when considering the suite of review comments, please look for opportunities to continue to hone and focus the text even further. Please see my detailed comments for suggestions related to this, as well as to specificity of ES findings and traceable accounts, refining figures and tables, and various specific clarifications. In addition, where likelihood terms are used ("likely," "very likely," etc.), it is also not always clear whether they are intended as calibrated language or not--please carefully check this and avoid casual usage. (Mastrandrea, Michael, IPCC WGII TSU)

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45	22	0	0	0	0	SUMMARY PRODUCTS: In preparing the final draft of your chapter and particularly your executive summary, please consider the ways in which your chapter material has been incorporated into the draft SPM and TS. For Chapter 22, this includes presentation of observed impacts and vulnerabilities in section A.i, adaptation experience in section A.ii, and sectoral and regional risks in section C.i, as well as related figures and tables. Are there opportunities for presenting chapter findings and material in a way that further supports broad themes highlighted in the summary products and that facilitates additional cross-chapter synthesis in specific findings or figures/tables? Do the existing summary product drafts suggest additional coordination that should occur between Chapter 22 and other chapters at LAM4? (Mastrandrea, Michael, IPCC WGII TSU)
46	22	0	0	0	0	Useful apart from the concealment of the absence of overall temperature change (Gray, Vincent, Climate Consultant)
47	22	1	0	104	0	Overall comments - much improved from the FOD. The whole chapter still reads, however, in a rather fragmented fashion, and shows some repetition. I began to note the instances of repetition, but there are a number. I would recommend that the entire chapter undergo a very rigorous edit for flow, continuity and reduction of repetition. This may allow it to be shorter, easier to read, and allow some of the very good content to be better communicated. (Archer van Garderen, Emma, CSIR)
48	22	1	0	104	0	A further overall comment - I'm uneasy about the emphasis on migration. The evidence base here is still rather weak. I do think this needs to be treated with substantive caution, until the evidence base improves. (Archer van Garderen, Emma, CSIR)
49	22	1	1	1	1	The tile "Africa" is hanging. Let the title capture the sprit of the underlying text in the entire document. In otherwords, the title always prepares the reader what he expects in the text of the document (KENYA)
50	22	1	1	104	1	General comment: The chapter has improved since the first order draft and represents a good selection of material. There were a few misrepresentations and I have highlighted these in my individual comments. Overall it is a solid chapter, those involved should be congratulated for their hard work. (Bain, Caroline, Met Office)
51	22	3	7	0	0	Authors should add ES findings on other important topics like terrestrial ecosystems, differential impacts among diverse communities, urban areas, impact on critical economic sectors, specific experince with adaptation, etc. (Chatterjee, Monalisa, IPCC WGII TSU)
52	22	3	7	0	0	Format of the Executive Summary -- The chapter team should consider the presentation of each paragraph within the executive summary. A format of a bold key finding followed by non-bold supporting statements should be adopted for each paragraph. (Mach, Katharine, IPCC WGII TSU)
53	22	3	7	0	0	Length of the Executive Summary -- The chapter team should ensure that the executive summary is as concise as possible, with each sentence communicating richly. A target length of 2-2.5 pages should continue to be the priority. (Mach, Katharine, IPCC WGII TSU)
54	22	3	7	0	0	Regional Key Risks in the Executive Summary -- The chapter team is encouraged to present clearly the key regional risks for Africa within the executive summary. For the key risks, how do they vary with level of climate change, and what is the potential for adaptation to reduce the risks? What are the risks in the near-term (which can be considered an era of climate responsibility) versus the long-term (which can be considered an era of climate options)? The framing of SPM table SPM.4 or the framing of chapter 25's executive summary and table 25-8 could be considered. Identifying key risks would enable the chapter team to continue to tighten the executive summary with a strong organizing principle. (Mach, Katharine, IPCC WGII TSU)

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55	22	3	7	0	0	Executive Summary: Please continue to refine the focus and clarity of the executive summary as you revise the chapter. The executive summary is currently a bit long, and I have made suggestions below for specific paragraphs where I think there are opportunities for shortening or condensation. Please continue to ensure clear line of sight to underlying chapter sections--in general this is done well at present, and I have noted places where further clarity would be useful below. Finally, please consider ways to present each paragraph as a bold finding with a set of nonbold supporting statements. Some paragraphs currently diverge from this format. In addition, in some paragraphs the calibrated uncertainty language associated with nonbold statements differs from that of the bold statements. This is fine if presented clearly, but please pay attention to this nuance to ensure clarity of associated calibrated language. (Mastrandrea, Michael, IPCC WGII TSU)
56	22	3	7	5	43	As stated eloquently on Page 34, lines 40-44, the important roles of pro-poor adaptation policies: social protection, services and safety nets; better water and land governance, enhanced water storage and harvesting, better post-harvest services and strengthened civil society and greater involvement in planning, could be emphasized in the Executive Summary. (UNITED STATES OF AMERICA)
57	22	3	7	5	43	The highest priority adaptation activities (agriculture?, pro-poor resilience-building development?) should be emphasized in the Executive Summary. Which adaptations and impacts are most critical? (UNITED STATES OF AMERICA)
58	22	3	7	5	43	There are many case of unitalicised "likely" in the ES. (Stone, Dáithí, University of Cape Town)
59	22	3	9	3	13	Only evidences on warming and rainfall changes are mentioned. Evidences on anthropogenic climate change evidences are not indicated. These evidences of anthropogenic climate change should be be quoted here. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
60	22	3	9	3	13	The general time frame for these statements should be specified. (Mach, Katharine, IPCC WGII TSU)
61	22	3	9	3	13	There is overwhelming evidence that the earth is not warming, and if you take into consideration the inherent bias of the "Mean Global Surface Anomaly Record" it is actually cooling. This is particularly evident in the persistent cold winters in the Northern Hemisphere. Then, the claimed warming is only decimals of a degree, hardly capable of consideration when compared with the inaccuracies of measurement. Then, what has this got to do with carbon dioxide? The climate has always had periods when it warms and others when it cools. (Gray, Vincent, Climate Consultant)
62	22	3	10	3	10	Please specify what is meant by increased here--compared to what, and over what timeframe? (Mastrandrea, Michael, IPCC WGII TSU)
63	22	3	11	0	0	Greater clarification should be given about the nature of change in rainfall (changes in seasonality and amount of precipitation seems too vague) (Castro, A. Peter, Maxwell School, Syracuse University)
64	22	3	12	3	12	Reduced Long Rains over E.Africa have not (yet) been shown to be anthropogenic. This recent reduction is different to the direction of model trends and has not (to my knowledge) been shown to be inconsistent with natural variability. So I think it's too early to make the attribution statement made here. (Rowell, David, Met Office Hadley Centre)
65	22	3	12	3	12	It is not completely clear that "long rains" have a specific meaning in this context, as explained in the corresponding chapter text. Please clarify the seasonal period meant, or at least put the term in quotes to signal that it has a definition that can be found in the text. (Mastrandrea, Michael, IPCC WGII TSU)
66	22	3	13	3	38	The relative sea level, as measured by coastal tide gauges is not rising.. The most accurate measurements where GPS equipment has been used to control land level, show recent little or no change. (Gray, Vincent, Climate Consultant)
67	22	3	15	0	0	Presumably "likely" should be italicised? If so, then this is mostly a statement on the likelihood of some major global mitigation or geoengineering action. Can the IPCC make such assessments? Otherwise the conditionality on emissions scenario should be stated. (Stone, Dáithí, University of Cape Town)
68	22	3	15	3	15	Change 'are' to 'is'. (Burt, Peter, University of Greenwich)

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69	22	3	15	3	15	It may be helpful to state that the temperature that is being referred to is the mean annual temperature, as there will be significant nuance to changes in other types of temperature statistics (UNITED STATES OF AMERICA)
70	22	3	15	3	15	This statement could benefit from clarification. What is the geographic region (Africa versus the whole world)? Is this a statement being made across all scenarios of climate change? Presumably average warming, globally or regionally, is being referred to? Finally, if "likely" is being used as a calibrated likelihood term, reflecting a probabilistic basis for its assignment, it should be italicized; casual usage of the reserved likelihood term should be avoided. (Mach, Katharine, IPCC WGII TSU)
71	22	3	15	3	15	Is this "likely" meant as calibrated language? If so, its pairing with medium confidence is odd and needs explanation, as generally likelihood statements are associated with high or very high confidence. If not, please rephrase to avoid confusion. (Mastrandrea, Michael, IPCC WGII TSU)
72	22	3	15	3	19	For clarity, it would be useful if the summary stated what the 2C was relative to. (Caesar, John, Met Office Hadley Centre)
73	22	3	15	3	19	It would be useful to provide further support for this finding in section 22.2.1.2, explaining clearly the basis for the conclusions drawn here. Section 22.2.2.2 focuses on precipitation, and does not seem relevant here. (Mastrandrea, Michael, IPCC WGII TSU)
74	22	3	21	0	0	Perhaps it should be stated that some African countries have attained high levels of growth in recent years, especially those possessing mineral wealth and other resources involved in global exports. Whether such growth will generate benefits that are widespread remains to be seen (Castro, A. Peter, Maxwell School, Syracuse University)
75	22	3	21	3	31	These two paragraphs seem to be out of place. The paragraph above and below are talking about the direct physical changes expected, while these are about the effects on people of those physical changes. Consider moving this paragraph to later in the Executive Summary, and adding a bolded sentence as per the other paragraphs in this section (UNITED STATES OF AMERICA)
76	22	3	21	3	31	While it is important to cast the ongoing cc adaptation strategies in Africa in the context of the MDGs, this section should also include specific case studies where, for instance, cc adaptation initiatives that can be directly linked to specific MDGs. For example, the success achieved by the Millennium Villages Projects (e.g Sauri, Kisumu-Kenya; Potou, Senegal, etc)-Generose Nziguheba et al., 2010 (Advances in Agronomy) (UNITED STATES OF AMERICA)
77	22	3	21	3	31	We think that the MDGs are very important, and note the importance of tackling climate change for their attainment, however this isn't a key scientific finding so we would suggest removing the second paragraph. This would also help shorten the exec summary. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
78	22	3	21	3	31	This text should be condensed with a focus on material relevant to climate change. Structuring the paragraphs with bold key findings followed by non-bold supporting statements would be preferable. On line 24, where a placeholder is provided, a level of confidence should be assigned of course, ideally through indication of a bold key finding for the paragraph. (Mach, Katharine, IPCC WGII TSU)
79	22	3	21	3	31	It is not completely clear that these paragraphs are relevant to the executive summary. If retained, please focus on links with and relevance to climate change, rather than simply information about the MDGs. (Mastrandrea, Michael, IPCC WGII TSU)
80	22	3	26	3	26	Significant' may imply some statistical significance, would prefer it if you used 'some' instead (Bain, Caroline, Met Office)
81	22	3	29	3	31	The focus on improved monitoring and evaluation and more/more accurate impact assessments for programs in Africa is well founded and expressed in this sentence. (UNITED STATES OF AMERICA)
82	22	3	33	3	34	This statement would benefit from clarification. What impacts are meant on line 33, and what is meant by "threaten"? Is it possible to indicate any differences in outcomes across scenarios of climate change and time frames? (Mach, Katharine, IPCC WGII TSU)

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83	22	3	33	3	37	Suggest making a statement about whether projections show that events like this are likely to happen more frequently in the future. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
84	22	3	33	3	38	The climate change component of risk should be carefully characterized. For example the risk of floods in coastal cities increases due to other factors such as inadequate or lack of drainage infrastructure, poor urban planning, and poor development control. (NETHERLANDS)
85	22	3	33	3	38	The impacts of climate change in coastal rise is contextual. Therefore generalized statements or extrapolation of impacts in one country to another needs justification (NETHERLANDS)
86	22	3	33	3	38	The clarity of this paragraph could be improved. Are impacts of climate change beyond sea level rise relevant? What is meant by "threaten" more specifically in line 34? In addition, it is not clear how broadly the Kwa Zulu Natal coast example is relevant. Is the author team asserting that this is indicative of what could happen anywhere on the coast of Africa, or in specific areas? Please clarify the appropriate level of generalization. (Mastrandrea, Michael, IPCC WGII TSU)
87	22	3	36	3	37	what could happen' is a bit vague and could imply to readers that this will be a normal event. Suggest change to '... in March 2007, is an example of the type of event that would become amplified in the future.' (Bain, Caroline, Met Office)
88	22	3	37	3	38	The assertion in the executive summary that the cost of coastal zone sea level impacts "will increase for economic sectors and people living in these zones (medium confidence)" seems a bit weak to us, and at best obvious (?) (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
89	22	3	37	3	38	The relative importance of climate change versus changes in exposure and vulnerability as drivers of this pattern should be specified. On line 38, "medium confidence" should be italicized. (Mach, Katharine, IPCC WGII TSU)
90	22	3	37	3	38	What evidence is meant here? And is there a basis on which to give a sense of the timeframe of how such impacts will evolve over time? (Mastrandrea, Michael, IPCC WGII TSU)
91	22	3	40	3	42	This executive summary statement does not take the presently more crucial role of warming for coral reefs into account, by checking ocean chapters a more balanced statement could be developed. (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
92	22	3	40	3	42	It seems odd that all the other bolded sentences have further explanation, but that this one does not. It might be helpful to add a sentence or two of explanation here. (UNITED STATES OF AMERICA)
93	22	3	40	3	42	This finding should be carefully coordinated with chapter 6 and 30. Beyond the changes mentioned, for example, warming is a relevant driver. The magnitude of effects for economic activities should be very carefully specified, avoiding overstatement--it should also be clarified whether the statement regarding economic activities and fisheries pertains primarily or only to coral-reef supported activities. (Mach, Katharine, IPCC WGII TSU)
94	22	3	40	3	42	Sea surface warming is also mentioned in the relevant chapter text. (Mastrandrea, Michael, IPCC WGII TSU)
95	22	3	44	0	0	This "uncertain" is an unusual context for "high confidence". (Stone, Dáithí, University of Cape Town)
96	22	3	44	3	44	It seems incorrect to say there is high confidence that something is uncertain. IPCC guidance on uncertainty says high confidence confers something for which there are multiple, consistent independent data lines. Surely the reason for this uncertainty is lack of evidence? We suggest you consider re-framing this. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
97	22	3	44	3	52	Shouldn't agriculture and population be considered as components of water availability? (UNITED STATES OF AMERICA)
98	22	3	44	3	52	The logic of statements in this paragraph should be very carefully considered. The 1st sentence asserts with high confidence that the impact is uncertain, while later statements much more strongly assert that impacts will be felt primarily through water in the near-term and long-term--these statements could be interpreted as seemingly contradictory. The final statement of the paragraph is somewhat prescriptive. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
99	22	3	44	3	52	Please clarify the logic of this paragraph. If impacts are uncertain as stated in the first bold sentence, it is not clear how the nonbold sentences follow. Or does the first sentence refer to observed impacts while the others are forward looking? Please clarify. In addition, the associated sections make other points that could be considered for presentation here. (Mastrandrea, Michael, IPCC WGII TSU)
100	22	3	46	3	47	The claim that 'water is the primary medium through which climate change impacts will be felt' may be too strong, and seems to contradict other sections of the chapter that emphasize the large impacts that temperature increases will have on crops. Perhaps consider 'Water and agriculture are' (UNITED STATES OF AMERICA)
101	22	3	49	3	42	Some parts of the ocean actually emit carbon dioxide without evident harm to sea creatures. Increased carbon dioxide will mderely increase these reghions slightly. It will always be alkaline, not acid. (Gray, Vincent, Climate Consultant)
102	22	3	51	0	0	Also through disaster risk reduction. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
103	22	4	2	4	2	Casual usage of "likely" should be avoided as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
104	22	4	4	4	7	The authors might reconsider this claim. At the very least it needs a confidence level associated with it. Are references backing up this statement given later in the text? Furthermore, if the livelihood approaches will be insufficient, the preferred alternate options should be stated. (UNITED STATES OF AMERICA)
105	22	4	5	4	5	Casual usage of "likely" should be avoided as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
106	22	4	13	4	15	The approach taken in this finding is not necessarily the most preferable option. Additionally, given the vagueness implied by "severely" it would be preferable to specify the relevant time frame and scenarios of climate change for impacts that are more specifically defined. Additionally, the chapter team may wish to assign only a level of confidence here, avoiding "likely," if the likelihood assignment is not sufficiently supported by a probabilistic basis in the available information. (Mach, Katharine, IPCC WGII TSU)
107	22	4	13	4	15	I would recommend a different approach than repeating an AR4 finding in the executive summary. It would be preferable to present a new finding that communicates the current state of knowledge, with discussion of the relationship with AR4 in the chapter text. There is material in 22.3.4.1 that could be suitable for this purpose. (Mastrandrea, Michael, IPCC WGII TSU)
108	22	4	13	4	21	Emerging challenges to food security in Africa include foreign direct investment in agriculture (often referred to as "land/water grabbing") for either the production of biofuel crops, cut flowers, food crops etc. In addition to land grabbing are also the politics of seed, market reforms, migration and urbanization and livelihood diversification that challenge food security. Reassessment needs to be done in addition to the issues of biofuel discussed by the authors. They should also be highlighted in the executive summary, technical summary as well as in the SPM. (NETHERLANDS)
109	22	4	15	4	17	It might be helpful to clarify if the reduction in growing season length mentioned here is associated with temperature changes or changes in rainfall patterns. As written it is implied, but not stated explicitly, that it is associated with temperature. (UNITED STATES OF AMERICA)
110	22	4	15	4	17	The chapter does not provide strong evidence that there is a trend towards shorter growing seasons. In the rest of the chapter, reference to this climatic change (which indeed is very relevant and can have very adverse effects) is made several times without strong evidence that this change is actually observed or expected. There must be literature on this. Perhaps check this source: Kniveton, D R, Layberry, R, Williams, C J R and Peck, Mika (2009) Trends in start of the wet season over Africa. International Journal of Climatology, 29 (9). pp. 1216-1225. (van der Geest, Kees, United Nations University)
111	22	4	16	4	16	The chapter team should indicate more specifically what is meant by "significantly" and "strong adverse." If it is not possible to indicate more specifically what is meant, the strength of these descriptors used could be reconsidered. Finally, if "very likely" is being used as a likelihood term, reflecting a probabilistic basis for its assignment, it should be italicized; casual usage should be avoided. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
112	22	4	17	4	19	This sentence is not presented with high confidence in 22.3.4.3, but that is what is implied here by its association with the bold finding. Please clarify when nonbold sentences are associated with calibrated language that differs from the bold finding of a paragraph. (Mastrandrea, Michael, IPCC WGII TSU)
113	22	4	23	4	23	Please clarify what is meant by "wider" here--compared to what? (Mastrandrea, Michael, IPCC WGII TSU)
114	22	4	23	4	24	Instead of beginning a sentence with a descriptor of evidence, it would be preferable to provide a summary term for evidence within the parentheses. Additionally, casual usage of "likely" should be avoided. It is also not clear what is meant by "wider." (Mach, Katharine, IPCC WGII TSU)
115	22	4	23	4	31	While cc impacts on the incidences of highland malaria has been well reported, meningitis is one other diseases which has been well documented to be highly linked to weather/climate patterns and has been spreading from the Sahel to other parts (Ethiopia, northern Uganda, etc) , thus the African Meningitis belt has been expanding (e.g Agier et al., 2012). Therefore it would be good to mention this (even though the confidence may be low-to-medium). (UNITED STATES OF AMERICA)
116	22	4	23	4	31	This seems at odds with Chapter 11. While there are specific cases of spread of specific vector-borne diseases, there does not appear to be a clear understanding if this amounts to an increase in disease burden. However, there is a clear issue with what a e.g. 5C warming would do to outdoor labour conditions, with associated health impacts. (Stone, Dáithí, University of Cape Town)
117	22	4	24	4	25	It is unclear which scenarios will result in more malaria in South Africa. RCP8.5 projects less precipitation in large parts of SA, and currently regions which are malaria free today lack efficient malaria mosquitoes. These mosquitoes would have to migrate or disperse to malaria free regions to increase the potential for malaria transmission. I suggest the language is softened, for example by writing "increased potential for malaria transmission". Also need harmonization with chapter 11. (Lunde, Torleif Markussen, University of Bergen)
118	22	4	24	4	25	Instead of alluding to the findings of the 4th assessment report, it would be preferable to specify the findings of this assessment more clearly. Additionally, what is the relevant time frame for this statement--is it an observed outcome or a projection? (Mach, Katharine, IPCC WGII TSU)
119	22	4	24	4	25	Please state the findings of the chapter regarding malaria, rather than referencing the AR4 findings without complete details. (Mastrandrea, Michael, IPCC WGII TSU)
120	22	4	26	4	27	This statement on leishmaniasis is not clearly supported in 22.3.5. Please ensure clear support and traceability in the chapter text. (Mastrandrea, Michael, IPCC WGII TSU)
121	22	4	27	4	28	The "indirect" mechanism referenced here is not discussed in the associated chapter text, and children but not women are referenced in this context. Please ensure consistency with the chapter text. (Mastrandrea, Michael, IPCC WGII TSU)
122	22	4	29	4	53	For these paragraphs, it would be preferable to present in each paragraph only a bold initial key finding followed by supporting non-bold statements. (Mach, Katharine, IPCC WGII TSU)
123	22	4	37	4	37	'ad hoc' should be in italics. (Burt, Peter, University of Greenwich)
124	22	4	45	4	45	Delete comma after 'approaches' (Burt, Peter, University of Greenwich)
125	22	4	45	4	46	In the executive summary related to adaptation in Africa - text related to obstacles (and related to section 22.4.6) should be added, and it would be good to add more concrete examples. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
126	22	4	49	0	0	Page 4, Line 49: more research into livelihood diversification alternatives is needed such that the alternatives are also 'climate proof' That is, some alternative livelihoods/economic diversification initiatives adopted by some countries are also vulnerable to climate change. For example nature based tourism is at the top of the list for economic diversification away from the mineral sector in Botswana. Hence nature based tourism has a large stake in Community Based Natural Resources Management. in order to reduce vulnerability and enhance resilience it is important to factor in climate change vulnerability assessment for livelihood alternatives and appropriate adaptation strategies prior to adoption and implementation of the alternatives. (Hambira, Wame Lucretia , University of Botswana)
127	22	4	49	4	50	Why is this confined to local scales and isolated initiatives? governance? Governance issues? Funding generally targeted at particularly vulnerable communities? (UNITED STATES OF AMERICA)
128	22	4	52	4	53	"Coastal adaptation" seems a very broad concept for such a specific statement. (Stone, Dáithí, University of Cape Town)
129	22	4	52	5	2	These two sentences seem out of place. Should they be their own paragraph? (UNITED STATES OF AMERICA)
130	22	4	52	5	2	Considering this is part of the executive summary, I felt that the examples used for adaptation options here (on coastal zones, health systems and early warning) are a bit a vague and/or do not really touch on the most urgent adaptation needs for the African continent). (van der Geest, Kees, United Nations University)
131	22	5	4	5	5	It is curious to see the executive summary assert with mere "medium agreement" the importance of "soft path" options and flexible/iterative learning approaches for effective adaptation (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
132	22	5	6	5	7	Are policies implemented considered "soft" measures as well? (UNITED STATES OF AMERICA)
133	22	5	9	5	9	" I suggest removing 'the' in this '.... the cultural....." (UNITED REPUBLIC OF TANZANIA)
134	22	5	12	5	12	The phrase "reinforces the need" could be interpreted as prescriptive, and wording here could be considered. (Mach, Katharine, IPCC WGII TSU)
135	22	5	12	5	14	It is not clear why low-regrets adaptation strategies are the preferred option here. Some of the options like planting trees among crops have been tried for so long in Africa and it never seems to work, except for a few isolated cases promoted by environmental NGOs. Secondly what do we really call low-regret strategies? (NETHERLANDS)
136	22	5	12	5	14	This is a pretty significant statement, and it would be helpful if there were a few sentences of explanation added afterwards, especially examples of how current development strategies are inadequate, which not everyone might agree with. (UNITED STATES OF AMERICA)
137	22	5	12	5	14	This finding is fairly vague--please consider ways to focus the points being made. (Mastrandrea, Michael, IPCC WGII TSU)
138	22	5	12	5	43	It is important to not only mention interlinkages between adaptation and development but also funding and institutional reform. The need for mechanisms to absorb and manage large amounts of funding is mentioned in line 35, but this not sufficient. Institutional reform should also be mentioned. Adaptation is hindered by lack of incentives for policy makers to act early. See the 2013 Chatham House report by Rob Bailey "Managing Famine Risk: Linking Early Warning to Early Action." Furthermore the statement starting in line 41 "the potential for ineffective and mismanaged climate funds are- among other reasons - rooted in the level of complexity and uncertainty and novelty that surrounds many climate issues" is false. Corruption of climate funding is well know and rooted in basic governance failures not only in the complexity of climate change (see Transparency International's 2011 "Global Corruption Report: Climate Change", U4's Report "Standing, Andr©. 2012. Corruption and REDD+. Berlin: U4, Anti-Corruption Resource Centre", UNEP's March 2013 Global Environment Alert Bulletin http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=97) (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
139	22	5	16	5	24	On the limits to adaptation, the executive summary flags a "need for new development trajectories that place climate resilience, ecosystem stability, equity and justice at the centre of development efforts". Assuming this is feasible, it is unclear (at first view) how that would solve the problem identified which is "limits to adaptation", including maladaptation. Therefore, the placement and wording of this call might need reconsideration, to avoid confusing policymakers or the general public. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
140	22	5	16	5	24	Despite the limited evidence, this strikes me as an extremely important point that should either be near the beginning of the ES or the very last concluding point, rather than lost where it currently is. (Stone, Dáithí, University of Cape Town)
141	22	5	17	5	17	The key finding asserts potential limits to adaptation, but limits are not really specified with precision within the paragraph. (Mach, Katharine, IPCC WGII TSU)
142	22	5	23	5	23	Instead of asserting a "need" it would be preferable to specify the benefits of such trajectories, to avoid a potentially prescriptive formulation. (Mach, Katharine, IPCC WGII TSU)
143	22	5	26	5	25	" I propose to replace 'climate variability' with 'changed climate variability'" (UNITED REPUBLIC OF TANZANIA)
144	22	5	26	5	26	This finding relates to literature that is strongly in flux. Thus, the chapter team is strongly encouraged to coordinate this finding carefully with chapter 12 and also 19 to ensure harmonized treatment in this report. Additionally, it should be clarified what is meant by "increasingly threatened," as well as whether any role of climate change is being asserted here and, if not, which drivers support the assertion of "increasingly." (Mach, Katharine, IPCC WGII TSU)
145	22	5	26	5	27	This sentence implies that human security is threatened by climate variability, but not change. Is this the intended message? (UNITED STATES OF AMERICA)
146	22	5	26	5	33	As per my previous overarching comment, this finding makes me very hesitant. The link between conflict and climate change is still very lacking in evidence - I think we risk overselling certain arguments too early if it is included. (Archer van Garderen, Emma, CSIR)
147	22	5	26	5	33	The climate change component and its impact on human security of people in Africa should be carefully characterized. For example, page 27, Line 48-51 indicates that African civil wars can be explained by generic structural and contextual conditions: prevalent ethno-political exclusion, poor national economies, and the collapse of the Cold War System. (NETHERLANDS)
148	22	5	26	5	33	It would be preferable in this paragraph to structure it with a key finding in bold followed by non-bold supporting text. (Mach, Katharine, IPCC WGII TSU)
149	22	5	26	5	33	Please consider and coordinate with the findings of Chapters 12 and 19 on these topics, as the findings here are not consistent with the assessment of those chapters. In addition, lines 30-33 are not supported by section 22.3.6. Please provide line of sight for this material. (Mastrandrea, Michael, IPCC WGII TSU)
150	22	5	28	5	30	These statements do not seem fully consistent with related findings in chapters 12 and 19, and coordination should be ensured. (Mach, Katharine, IPCC WGII TSU)
151	22	5	29	0	30	But section 22.3.6 says 'the evidence base in the field of migration in Africa is patch and Varied' we suggest these two statements contradict each other and messaging of one or both should be reconsidered. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
152	22	5	30	5	31	It is not clear what is meant by "will be decisive," and the degree to which adaptation can reduce risks--and how--ideally should be specified more precisely. (Mach, Katharine, IPCC WGII TSU)
153	22	5	31	5	32	Based on some scenario... (Stone, Dáithí, University of Cape Town)
154	22	5	31	5	33	I can't see the reference to this study within the section quoted (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)

#	Ch	From Page	From Line	To Page	To Line	Comment
155	22	5	31	5	33	The logic of support within this statement could be clarified--what, beyond climate projections, informs this determination of risk levels? (Mach, Katharine, IPCC WGII TSU)
156	22	5	33	0	0	Do we have guidance as to what "medium" or "very high" risk is? (Stone, Dáithí, University of Cape Town)
157	22	5	35	5	43	On the last point in the executive summary, related to governance, the reference to the need for "strong institutional capacity to manage climate funds" should not be excluded from the sentence immediately following, which explains the potential for ineffective/mismanaged climate finance funds in merely conceptual terms: namely the "complexity, uncertainty, and novelty" of climate issues. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
158	22	5	35	5	43	It is surprising that the problem of relevant capacity development is being highlighted here as an inability or lack of capacity in African institutions to absorb and manage large funds allocated/received for CC adaptation and mitigation, without emphasizing/mentioning the dire need to strengthen capacity development in local institutions that can produce robust and actionable cc information that can be effectively used for cc assessments and adaptation strategies in the key sectors. (UNITED STATES OF AMERICA)
159	22	5	35	5	43	A connection ought to be made between the need for increasing institutional capacity and the importance of reaching marginalized populations; i.e., attention still needs to be paid to issues of local participation, including means of institutionalizing it (Castro, A. Peter, Maxwell School, Syracuse University)
160	22	5	38	5	40	Potentially confusing use of the word 'while' in this sentence (van der Geest, Kees, United Nations University)
161	22	5	39	5	40	" I propose to replace 'climate variability' with 'climate variability and climate change'" (UNITED REPUBLIC OF TANZANIA)
162	22	5	41	0	0	priority should not only be on institutional capacity to manage climate finance funds but also on how to source the funds given that the procedures are often not easy. (Hambira, Wame Lucretia , University of Botswana)
163	22	5	41	0	0	priority should not only be on institutional capacity to manage climate finance funds but also on how to source the funds given that the procedures are often not easy. (Hambira, Wame Lucretia , University of Botswana)
164	22	5	46	0	0	Section 22.1. The chapter team should continue to tighten this introductory section. (Mach, Katharine, IPCC WGII TSU)
165	22	5	50	5	52	Before describing briefly the socio-econoic and political context of Africa, the ecological context (The ecological regions) should be mentioned here. This is relevant as the report talks about climate change in Africa. The fact of mentioning these ecological regions will help hilighting the strong relationship between Africa and CC and emphasize the specificities of each regions (Diouf, Aliou, ENDA Energie-Environnement-Développement)
166	22	6	8	6	8	"for consistency may I propose the re-writing of 'NEPAD (New Partnership fo Africa' to 'New Partnership for Africa (NEPAD)'" (UNITED REPUBLIC OF TANZANIA)
167	22	6	16	6	19	Second sentence in Footnote 1, please note that Costa Rica is not in Africa! (NETHERLANDS)
168	22	6	17	6	18	"Costa Rica is not an African state' (UNITED REPUBLIC OF TANZANIA)
169	22	6	17	6	18	Is sounds here as though Costa Rica is in Africa. (Stone, Dáithí, University of Cape Town)
170	22	6	18	6	18	Costa Rica is listed here. Should it be? It is not African country (UNITED STATES OF AMERICA)
171	22	6	24	0	0	Section 22.1.2.1. In the title for this section, the reference to chapter 9 is ambiguous and should be clarified. Additionally, the language in this section should be further edited for clarity. (Mach, Katharine, IPCC WGII TSU)
172	22	6	28	6	29	There is something wrong with verb tense here, but I cannot correct because I am not clear whether the statement is about the situation before the report, as described in the report, or since the report. (Stone, Dáithí, University of Cape Town)
173	22	6	31	6	31	Insert space after 'decision'. (Burt, Peter, University of Greenwich)
174	22	6	33	6	33	" I propose the use of 'was' rather than 'is''focus is on.....'" (UNITED REPUBLIC OF TANZANIA)

#	Ch	From Page	From Line	To Page	To Line	Comment
175	22	6	36	6	36	The logic of this assertion is weak, and it would be preferable to reference actual findings. (Mach, Katharine, IPCC WGII TSU)
176	22	6	39	6	40	Does this sentence then imply that Africa's vulnerability is NOT owing to elevated exposure or sensitivity (i.e., it is simply owing to adaptive capacity). I thought I read in other sections that Africa is also particularly sensitive to climate change given its high dependence on agriculture. (UNITED STATES OF AMERICA)
177	22	6	47	6	49	Sentence ".....case study illustrate that African communities have prior experience with climate variability, although this knowledge will be sufficient to face climate change impacts". Do you mean to say "will not"? We think the experimental knowledge will not be sufficient! (NETHERLANDS)
178	22	6	48	3	48	Should it be 'insufficient' rather than 'sufficient'? The narrative doesn't make sense otherwise (Bain, Caroline, Met Office)
179	22	6	48	6	48	Should the phrase "will be sufficient" actually read "may not be sufficient" (UNITED STATES OF AMERICA)
180	22	6	48	6	48	"replace the word 'sufficient' with 'insufficient'" (UNITED REPUBLIC OF TANZANIA)
181	22	6	50	0	0	these studies have led to a steady growth in literature in this field for the African continent. With regards to tourism and climate change in Botswana see: Saarinen, J., Hambira, W.L, Athlapheng, J. and H. Manwa (2013). Tourism and Climate Change in Southern Africa: Perceived impacts and adaptation strategies of the tourism industry to changing climate and environment in Botswana. In Reddy, V. and K. Wilkes (Eds) Tourism, Climate Change and Sustainability. Routledge, London ISBN: 978-1-84971-422-8 Saarinen, J., Hambira, W., Athlapheng, J., and Manwa, H. (2012) Tourism Industry reaction to climate change in Kgalagadi South District, Botswana. Development Southern Africa Vol. 29 No. 2, pp. 273–285 Hambira, Wame L. (2011). Screening for Climate change vulnerability in Botswana's tourism sector in the bid to explore suitable adaptation measures and policy implications: A case study of the Okavango Delta. International Journal of Tourism Policy. Vol. 4, No. 1, pp. 51-65. (Hambira, Wame Lucretia , University of Botswana)
182	22	7	4	0	0	I think you mean this more generally, i.e. "the high vulnerability of the African continent to climate change". (Stone, Dáithí, University of Cape Town)
183	22	7	4	7	4	It should be noted that it is not just our confidence level in the predicted physical changes, but also their potential magnitude. We may be uncertain of what changes may occur, but if they have the potential to be large changes, they are likely important as well. (UNITED STATES OF AMERICA)
184	22	7	6	7	6	It could be helpful to also indicate understanding of projections. (Mach, Katharine, IPCC WGII TSU)
185	22	7	6	7	7	It could be useful to state the reason that confidence is low e.g. inadequate observations, or quality of observations. (Caesar, John, Met Office Hadley Centre)
186	22	7	8	7	8	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
187	22	7	12	0	0	Section 22.2. The chapter team should continue to shorten this section as much as possible. (Mach, Katharine, IPCC WGII TSU)
188	22	7	12	9	32	The choice of 1906-1925 as a starting baseline period for the observed climate change plots shown in Figure 22-1 is not scientifically credible. An examination of the station databases (such as the GHCN) or the station influence files from the CRU can be used to verify that the 1906-1925 station density is very low in most of Africa. A 1950-1969 baseline, consistent with the time series shown in Figure 22-2 would be preferable. I would hazard that the 1901-1925 temporal variations for the regions shown in 22-2 do not vary very much, due to the lack of actual information. Figures 22-1 and 22-2 should use the same time periods, and 1950-2006 is much more credible based on the true information available. (UNITED STATES OF AMERICA)
189	22	7	12	9	43	Where is figure 1 referenced and discussed? (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
190	22	7	12	10	19	Sections 22.2.1 and 22.2.2: Please update to ensure consistency and cross-referencing with relevant WGI AR5 chapters and Annex I: Atlas of global and regional climate projections. Currently, not a single reference to the WGI AR5 contribution is included. (Plattner, Gian-Kasper, IPCC WGI TSU)
191	22	7	12	10	44	There is some new literature missing which has been published 2011 to 2013 (submitted in time and up-loaded to the TSU system), which is related to the simulation of today's seasonal rainfall characteristics (Haensler, A., Hagemann, S., & Jacob, D. (2011). Dynamical downscaling of ERA40 reanalysis data over southern Africa: added value in the simulation of the seasonal rainfall characteristics. International Journal of Climatology, 31(15), 2338-2349), a new precipitation climatology (Grigory Nikulin, Colin Jones, Filippo Giorgi, Ghassem Asrar, Matthias Büchner, Ruth Cerezo-Mota, Ole Bøssing Christensen, Michel Déqué, Jesus Fernandez, Andreas Hänsler, Erik van Meijgaard, Patrick Samuelsson, Mouhamadou Bamba Sylla, Laxmi Sushama, Precipitation Climatology in an Ensemble of CORDEX-Africa Regional Climate Simulations, Journal of Climate, 2012, 25, 18, 6057), and regional climate change in the Congo basin with associated impacts on forestry and water management (grey lit: CSC (2013): Climate Change Scenarios for the Congo Basin. [Haensler A., Jacob D., Kabat P., Ludwig F. (eds.)]. Climate Service Centre Report No. 11, Hamburg, Germany, ISSN: 2192-4058. and Saeed F., Haensler A., Hagemann S. & Jacob D. (submitted Jan 2013): Representation of extreme precipitation events leading to opposite climate change signals over the Congo basin. Submitted to Atmosphere (in revision)) and for central Africa (Haensler A., Saeed F., & Jacob D. (submitted Jan 2013): Assessing the robustness of projected precipitation changes over central Africa on the basis of a multitude of global and regional climate projections. Submitted to Climatic Change (in revision) and Southern Africa (Haensler, A., Hagemann, S., & Jacob, D. (2011). The role of the simulation setup in a long-term high-resolution climate change projection for the southern African region. Theoretical and applied climatology, 106(1-2), 153-169. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
192	22	7	14	0	0	Section 22.2.1. The chapter team should ensure consideration of the relevant sections and key findings of the working group 1 contribution to the 5th assessment report, with cross-references provided. Especially relevant may be the key findings of chapter 14 and the content of the working group 1 Atlas. (Mach, Katharine, IPCC WGII TSU)
193	22	7	16	7	40	Evidences of observed trends are very well analysed. But, any evidence is provided about the anthropogenic signal of these trends in Western, Eastern and Southern Africa even if the reference is quoted (Min and Hense, 2007). It is very important to explain how these observed trends in Africa are related to anthropogenic process. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
194	22	7	16	7	40	You have failed to notice that there has been no change for fifteen years. Also 0.5°C is a negligible amount, well below the level of statistical significance for the low quality information used. There is, effectively no significant temperature change in Africa for the past 100 years and all the "impacts: and vulnerability" you ascribe to it are highly dubious. (Gray, Vincent, Climate Consultant)
195	22	7	18	7	18	Again, it should be clarified here, and elsewhere, that mean annual temperature is what is being discussed. (UNITED STATES OF AMERICA)
196	22	7	18	7	40	More could be made of studies that attribute likelihood of temperature rise being due to human activity compared to natural variability, if those studies are credible. (UNITED STATES OF AMERICA)
197	22	7	19	7	19	"near-surface temperature is it the same as surface temperature?" (UNITED REPUBLIC OF TANZANIA)
198	22	7	21	7	21	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. If the term has been assigned reflecting a probabilistic basis in the available information, the likelihood term should be italicized. Additionally, within this statement, are the variations in El Niño considered part of natural variability? This could be clarified. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
199	22	7	21	7	22	El Nino itself is also natural variability, so this sentence doesn't really make sense. (Rowell, David, Met Office Hadley Centre)
200	22	7	21	7	22	What is the source of the statement on lines 21-22 re West Africa and El Nino? This needs a citation. (UNITED STATES OF AMERICA)
201	22	7	21	7	22	" from this wording it seems as if el nino southern oscillation is not a natural variability; please clarify" (UNITED REPUBLIC OF TANZANIA)
202	22	7	21	7	22	ENSO is a form of natural variability, so please clarify the distinction being made here. (Mastrandrea, Michael, IPCC WGII TSU)
203	22	7	24	7	25	Which periods are compared here when stating that the frequencies of droughts in the Sahel have increased? (Benjaminsen, Tor A., Norwegian University of Life Sciences)
204	22	7	24	7	25	Remove reference to number of droughts - this should be in the precipitation section not the temperature section (Bain, Caroline, Met Office)
205	22	7	24	7	25	The line about the increase in droughts in the Sahel (24-25) also seems problematic - even a hostage to fortune - unless more can be said that these may be made worse by human induced climate change rather than being part of not-well-understood natural cycles. (UNITED STATES OF AMERICA)
206	22	7	24	7	25	This section need more discussion of the varying opinions on the Sahel (e.g. Giannini vs Folland/Hoerling vs Cook). (UNITED STATES OF AMERICA)
207	22	7	24	7	25	The Sahel drought fits oddly in a section about observed trends in temperature. It should be in 22.2.3, along with the drought discussion there. (Stone, Dáithí, University of Cape Town)
208	22	7	28	7	30	It would be preferable to specify the general time frame of this change. (Mach, Katharine, IPCC WGII TSU)
209	22	7	31	7	31	"reconcile with page 7 line 19" (UNITED REPUBLIC OF TANZANIA)
210	22	7	37	7	38	"which has decreased the diurnal temperature range" is redundant. (Stone, Dáithí, University of Cape Town)
211	22	7	37	7	39	The last bit of this sentence does not seem to make sense. Please try to clarify what is being stated here. (UNITED STATES OF AMERICA)
212	22	7	37	7	39	"I propose the sentence to be re-written and it does not end nicely. It two sentence could be written it will convey a good story. " (UNITED REPUBLIC OF TANZANIA)
213	22	7	39	0	0	Have they been observed? (Stone, Dáithí, University of Cape Town)
214	22	7	43	8	16	The text and the Exec Summary highlight that temperature rise by 2100 over Africa will exceed a 2 degree threshold. Conventionally the 2 degree threshold refers to global average, so is there a defined threshold whereby local changes of 2 degrees are defined as "dangerous"? This could cause confusion between discussions of a 2 degree world, and 2 degrees of regional/local change. The text in the section 22.2.1.2 more accurately states that projections indicate temperatures over Africa will rise faster than global mean temperatures. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
215	22	7	43	8	16	These are all incompatible with the absence of warming for the past 15 years (Gray, Vincent, Climate Consultant)
216	22	7	45	8	16	It might be helpful to explain what is driving these warming trends, and whether they are expected to be uniform over Africa. (UNITED STATES OF AMERICA)
217	22	7	48	7	48	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
218	22	7	49	7	50	The phrase about drier/wetter climates would be better placed in section 22.2.2.2. (Rowell, David, Met Office Hadley Centre)

#	Ch	From Page	From Line	To Page	To Line	Comment
219	22	7	49	7	50	Section 22.2.1.2. on projected temperature trends seems a bit muddled as it includes wetter/drier climate projections (lines 49-50) - put those in the next section on precipitation. (UNITED STATES OF AMERICA)
220	22	7	49	7	51	This sentence seems out of place given that it is talking about "drier" which implies rainfall and not just temperature, but is in a section focused almost solely on temperature. (UNITED STATES OF AMERICA)
221	22	8	1	8	4	The relevant scenario of climate change should be specified for these statements. (Mach, Katharine, IPCC WGII TSU)
222	22	8	3	8	3	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
223	22	8	6	8	6	In place of "global warming," it may be clearest to say "global mean temperature increase," assuming this is what is meant. (Mach, Katharine, IPCC WGII TSU)
224	22	8	11	8	11	remove 'thus' or change to 'also' as increases in temperature do not necessarily imply drought (Bain, Caroline, Met Office)
225	22	8	13	8	16	While it may be tempting to give the economic perspective of climate change over different parts of Africa, it may also be difficult to provide values and show trends over specific political regions/economic blocks. This is because of the differential responses to climate change over many parts of Africa given the large variability of climate within short distances- a function of physical features, seasonality, and responses/sensitivity to global teleconnections such as ENSO, DMI, NAO, etc. The authors should more clearly address this aspect of the issue in this chapter. (UNITED STATES OF AMERICA)
226	22	8	15	8	16	The specific temperature increase meant could be specified further--2°C annual average warming across Africa? (Mach, Katharine, IPCC WGII TSU)
227	22	8	22	8	24	Measuring the standard deviation of 20yr means using overlapping periods starting in consecutive years 1906-1925 or 1986-2005 is equivalent to calculating the standard deviation from only two (nearly) independent data points. Consequently this will give a very poor, almost meaningless, measure of the standard deviation of 20yr means. Better would be to use the 5 independent 20yr means available in the whole of the 20th century, or use data from long model control runs. (Rowell, David, Met Office Hadley Centre)
228	22	8	22	8	28	I found the description of the colours and symbols for the CMIP5 panels confusing. I suggest (a) phrasing all percentages of models as ">" (ie. line 23 change "<66% of models exhibit a change greater than" to ">66% of models exhibit a change less than", and line 25 change "<66% of models agree" to ">66% of models disagree"; and (b) have a separate sentence that states "Colours indicate the ensemble mean change." (since I assume that colours without circles also indicate the ensemble mean change, which is currently not stated) (Rowell, David, Met Office Hadley Centre)
229	22	8	32	8	32	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
230	22	8	46	8	46	It sounds like "land" and "exclusive economic zone territories" are different regions, but I guess the latter are land in which case the mention of land for temperature becomes redundant (and in fact confusing). (Rowell, David, Met Office Hadley Centre)
231	22	8	49	0	0	Section 22.2.2. The chapter team should ensure consideration of the relevant sections and key findings of the working group 1 contribution to the 5th assessment report, with cross-references provided. Especially relevant may be the key findings of chapter 14 and the content of the working group 1 Atlas. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
232	22	8	51	9	32	Suggested addition: The findings by Nyeko-Ogiramoi et al. (2013) indicated that rainfall extremes in the Lake Victoria basin in Eastern Africa are, generally, experiencing positive linear trends. Albeit positive trend was generally demonstrated, the presence of significant linear trend was manifested in the extremes of the data obtained from the stations located in the northern and eastern parts of the Lake Victoria basin. This may suggest that the monotony in the positive trend is a result of an ever increasing and consistent external enhancement of the natural climate agitation. Ref: • Nyeko-Ogiramoi, P., Willems, P., Ngirane-Katashaya, G. (2013), 'Trend and variability in observed hydrometeorological extremes in the Lake Victoria basin', Journal of Hydrology, 489, 56-73 (Willems, Patrick, KU Leuven)
233	22	8	51	9	32	Suggested addition: Taye et al. (2013) examined the long-term historical changes in frequency and amplitude of hydroclimatic extremes in the Blue Nile basin using data from the second half of 20th century. No clear trends were detected, but strong decadal variations linked to the Pacific Ocean sea surface temperature variations. Refs: • Taye, M.T., Willems, P. (2012). 'Temporal variability of hydro-climatic extremes in the Blue Nile basin', Water Resources Research, 48, W03513, 13p. (Willems, Patrick, KU Leuven)
234	22	8	53	8	53	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
235	22	8	53	8	54	This needs a reference. (UNITED STATES OF AMERICA)
236	22	8	54	8	54	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
237	22	8	54	9	2	The period covered by the data analysed by Mohamed should be specified, so that one can now if this confident. Because, since 1990, it seems that the most strong evidence one can note is an increase of the variability of rainfall. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
238	22	9	1	9	1	Decrease in rainfall compared to which period? Which periods are being compared here? (Benjaminsen, Tor A., Norwegian University of Life Sciences)
239	22	9	1	9	2	When is this decrease measured from? The earlier decades of the 20th century? Recent years have seen an increase in rainfall so it is important to be clear about the baseline you use for this statement. (Bain, Caroline, Met Office)
240	22	9	1	9	2	A decrease is a relative term, and therefore the timeframe needs to be identified over which this decrease occurred. (UNITED STATES OF AMERICA)
241	22	9	1	9	5	For which time periods are the trends described by the Mohamed and Chineke papers? This is important because otherwise it is unclear whether they are more likely to be due to climate change or decadal variability. (Chadwick, Robin, UK Met Office)
242	22	9	2	9	2	I couldn't find the citation for the Mohamed, (2011) in the references. This is an important statement and I can't comment on it's validity without seeing the reference (Bain, Caroline, Met Office)
243	22	9	2	9	5	I strongly think the reference to the Chineke 2010 study should be removed along with any suggestion that the rainy season break is depreciating. The study does not investigate changes in rainfall and there is no evidence in it for a reduction in breaks in the rainy season despite their discussion saying there was. There is no evidence of trends, no evidence that there was ever a situation where no rain was recorded regularly in August (the no-breaks are evident in their data since the 1980s). Also, it is only 4 stations, all quite close to each other so it can't be said to represent the Gulf of Guinea. Data was only available from the 1980s and very stringent criteria were used to assess breaks in the rainy season meaning that it is very easy for a reduction in rainfall (but still some present) to be disregarded as an official 'break'. (Bain, Caroline, Met Office)
244	22	9	4	22	5	Is a 2-3 day break really distinguishable at all from the normal short breaks that occur during the wet season? If not, and if this result has been observed to be sustained over many seasons, then it would be more accurate to state that the "temporary rainfall cessation" has disappeared altogether. (Rowell, David, Met Office Hadley Centre)

#	Ch	From Page	From Line	To Page	To Line	Comment
245	22	9	5	0	0	Also, over the past forty years, recorded volumes of torrential rains increased 20 percent across various southern states, some of which already see up to 160 inches of rainfall a year, with wet seasons lasting eight to ten months (Aaron, 2011) [Aaron Sayne, Climate change Adaptation and Conflict in Nigeria. Special Report 274 of The United States Institute of Peace, 2011] (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
246	22	9	8	9	8	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
247	22	9	15	9	15	Quantify 'substantially'. (Burt, Peter, University of Greenwich)
248	22	9	18	9	20	No, the observed decline is not "contrary" to the AR4 findings. The former refers to the past, the latter refers to the future. I suggest instead referring to this as a surprising result, but also a result that can be explained in a number of ways that can be uncovered by further research (eg. errors or natural variability in models or observation, or an evolution of the combination of forcings that leads to change in trend direction). (Rowell, David, Met Office Hadley Centre)
249	22	9	18	9	20	Do you mean that the IPCC AR4 future projections for East Africa are contrary to the observed trend? If so this should be clarified, as the current sentence could be interpreted as meaning that AR4 stated an increase in East African Precipitation over the historical period. (Chadwick, Robin, UK Met Office)
250	22	9	18	9	20	Were these observed or projected changes? It sounds like observed, but the explanation following this only works if they were projected changes. (Stone, Dáithí, University of Cape Town)
251	22	9	19	9	19	Delete 'Fourth...Change' and the brackets: the AR4 is already defined. (Burt, Peter, University of Greenwich)
252	22	9	20	9	23	This sentence brings up a great point, that current trends do not always match model predictions. It would be helpful if the authors were able to attribute this mismatch to certain processes, or indicate whether this implies anything about the accuracy of the model predictions. A mismatch between current and future trends does not imply that one must be incorrect, but without an explanation, many people may assume that it does. (UNITED STATES OF AMERICA)
253	22	9	25	9	25	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
254	22	9	25	9	25	Late summer precipitation is mentioned. But what is late summer? This should be interpreted differently by readers in different regions (e.g. South Africa vs. Europe) (UNITED STATES OF AMERICA)
255	22	9	28	9	28	The sense of this is not clear. Do you mean 'in' rather than 'along'? (Burt, Peter, University of Greenwich)
256	22	9	28	9	28	Is this a 'downward trend' in aridity or rainfall? Please clarify (Bain, Caroline, Met Office)
257	22	9	35	0	0	In the Tana River in Kenya, the long rains season is projected to have almost the same peak precipitation amount in April with an earlier onset, while the short rains season is projected to have significant precipitation increases (Nakaegawa et al. 2012). This result may be suitable for this subsection: 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. Hydrological Research Letters., Vol. 6, pp.29-34, (2012) . (Nakaegawa, Toshiyuki, Meteorological Research Institute)
258	22	9	35	0	0	One thing that is not pointed out here is that in fact all of these precipitation projections imply a drier surface. A 5C warming involves an increase in the evaporation potential of 30-35%, and in Figure 22.1 we essentially do not see any corresponding 30-35% increase in precipitation. (Stone, Dáithí, University of Cape Town)
259	22	9	37	9	37	This paragraph makes this seem much more certain than it likely is. The models diverge significantly around what will occur in the Sahel with regard to rainfall, with about half the models predicting increased and half predicting decreases. (UNITED STATES OF AMERICA)
260	22	9	37	9	42	It should be good to read papers published by Mouhammad Bamba Sylla on the West African Region. It on projections of climate by 2030 and 2050; (Diouf, Aliou, ENDA Energie-Environnement-Développement)

#	Ch	From Page	From Line	To Page	To Line	Comment
261	22	9	37	9	44	For the Sahel, there are also models predicting an increase in rainfall that should also be mentioned. See eg Haarsma, R. J., F. M. Selten, S. L. Weber, and M. Kliphuis (2005), Sahel rainfall variability and response to greenhouse warming, Geophys. Res. Lett., 32, L17702, doi:10.1029/2005GL023232. (Benjaminsen, Tor A., Norwegian University of Life Sciences)
262	22	9	37	9	44	This paragraph seems at odds with the multi-model ensemble which shows moistening in most areas with some drying projected along the west coast of West Africa. Although these studies are valid and present the opposite case (i.e. Drying over most of the Sahel) they are not the consensus - at the moment it reads as though substantial drying is a given and this is only one potential scenario so the paragraph could be considered misleading or bias. (Bain, Caroline, Met Office)
263	22	9	37	10	19	In this section it should be indicated whether studies are based on a single model or on multiple models, as this is important for how robust the results may be. In particular the Paeth & Thamm paper projects very large changes in rainfall, but as this is only the result of one study from a single model the results should be interpreted with care. (Chadwick, Robin, UK Met Office)
264	22	9	39	9	41	This study is based on just one model and one rather severe land cover scenario. So that readers are not misled, I suggest either these 2 sentences are removed, or very clear caveats are added about the uncertainties and about the of land cover changes, and also that the results of this study likely lie at the upper end of the range of possibilities. (Rowell, David, Met Office Hadley Centre)
265	22	9	40	9	41	I strongly think that this sentence should be removed (referring to the reduction in annual rainfall of up to 40% in Congo and the Sahel by 2025) this figure was based on one study using one model and is out of context/ contradictory to the multi-model ensembles showing more rainfall, as in the projections shown in Figure 22-1. At the least it should be rephrased to emphasise it is one study and does not represent consensus. (Bain, Caroline, Met Office)
266	22	9	41	9	41	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
267	22	9	41	9	42	Re. the Sahel, need to add (a) that the sign of rainfall change over the rest of the Sahel is highly uncertain (see AR5 WG1 draft), and (b) that likely changes in onset and cessation date are more robust (see studies by Biasutti). (Rowell, David, Met Office Hadley Centre)
268	22	9	41	9	42	It could be helpful to specify whether this is an outcome expected across scenarios and across relevant time frames (near-term and long term). (Mach, Katharine, IPCC WGII TSU)
269	22	9	43	9	44	Patricola and Cook (2010a) do not suggest drought of the Guinean Coast region - the context of their findings suggest that there is contradictory information from models depending on the emission scenarios used (Bain, Caroline, Met Office)
270	22	9	46	9	48	Shonwe (p 9, lines 46-48) seems to be contradictory to Funk et al. at p 9, line 13 - Shongwe could be cited earlier as one of the studies that support IPCC4's assessment for a wetter East Africa. (UNITED STATES OF AMERICA)
271	22	9	46	9	48	It could be helpful to specify whether this is an outcome expected across scenarios and across relevant time frames--or to what timeframe the uncertainties about rate are relevant, generally. (Mach, Katharine, IPCC WGII TSU)
272	22	9	46	9	52	The contradictions on the projected wetting/drying over parts of Africa (especially eastern Africa) from studies utilizing same CMIP3 data (Shongwe et al. 2011 and Patricola&Cook (2010) need to be mentioned as that depict the huge uncertainty in long term projections that may also depend on the sub-set of CMIP3/5 models employed in the studies. (UNITED STATES OF AMERICA)
273	22	9	47	9	47	Delete 'seasons' (they are months rather than seasons). (Burt, Peter, University of Greenwich)
274	22	9	48	9	48	Patricola and Cook study was published in 2011 - this should be updated in the references as well (Bain, Caroline, Met Office)
275	22	9	49	9	49	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
276	22	9	51	9	51	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
277	22	10	1	10	19	Does this whole paragraph refer to southern Africa? If so, please state this at the start of the paragraph. If not, please clarify throughout the paragraph the location of the areas being discussed. (Rowell, David, Met Office Hadley Centre)
278	22	10	1	10	19	This paragraph seems to capture the nuances a lot better than other parts of the chapter. Is there any way to broaden its scope to all of Africa and not just Southern Africa. Probably this would simply require a little word smithing to indicate that such nuance is true for all of Africa, and then use examples from Southern Africa. (UNITED STATES OF AMERICA)
279	22	10	4	10	10	Given the statement on line 11, it could be beneficial to specify further how these projected changes depend on the scenario of climate change and for what time frames they are relevant. (Mach, Katharine, IPCC WGII TSU)
280	22	10	11	10	11	Delete comma after 'magnitude'. (Burt, Peter, University of Greenwich)
281	22	10	14	10	15	Only one downscaling method is used in this study. Trials of other methods (including a variety of RCMs) may lead to considerable uncertainty, so I suggest this is acknowledged in the text. (Rowell, David, Met Office Hadley Centre)
282	22	10	16	10	17	This sentence about CMIP5 projections across Africa would fit better at the start of the section (p9 L37), before moving on to projections for individual regions. (Chadwick, Robin, UK Met Office)
283	22	10	16	10	17	It could be helpful to indicate explicitly the relevant scenarios here (RCP4.5, 8.5). (Mach, Katharine, IPCC WGII TSU)
284	22	10	22	0	0	Section 22.2.3. The chapter team should ensure consideration of the relevant sections and key findings of the working group 1 contribution to the 5th assessment report, with cross-references provided. (Mach, Katharine, IPCC WGII TSU)
285	22	10	22	10	44	Suggested addition: Taye et al. (2011) studied the potential impact of climate change on the hydrological extremes of Nyando River and Lake Tana catchments, which are located in two source regions of the Nile River basin. The results reveal increasing mean runoff and extreme peak flows for Nyando catchment for the 2050s while unclear trend is observed for Lake Tana catchment for mean volumes and high/low flows. Ref: • Taye M.T., Ntegeka V., Ogiramoi N.P., Willems P. (2011), 'Assessment of climate change impact on hydrological extremes in two source regions of the Nile River Basin', Hydrology and Earth System Sciences, 15, 209-222 (Willems, Patrick KUI Leuven)
286	22	10	22	10	44	Section 22.2.3: Although the old reference to WGI AR4 has been removed, there is still no link to the current WGI AR5 assessment. No cross-referencing is currently provided to the SREX or the relevant WGI AR5 chapters. Ensure consistency with both SREX Ch3 and WGI AR5. Both, SREX and WGI AR5, have to be cited in this context. (Plattner, Gian-Kasper, IPCC WGI TSU)
287	22	10	24	10	24	In my point of view, floods should not be considered as climate (weather) extreme events as they are not caused only by climate events. They have strong land use dimension, so human dimension. They are strongly related to poor land management. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
288	22	10	24	10	24	In place of "aggravated," it could be helpful to be more specific regarding directions of change for relevant characteristics of droughts and floods. (Mach, Katharine, IPCC WGII TSU)
289	22	10	24	10	25	It is not yet clear whether the recent droughts over E.Africa are anthropogenic or natural, so I think this should be clarified. For example, cf. the early 19th century droughts shown in Fig.10 of Nicholson et al. (2012, Bull Am Met Soc, p1219). (Rowell, David, Met Office Hadley Centre)
290	22	10	24	10	25	Please state the timescale of this trend in rainfall extremes. I believe the Funk and Williams & Funk papers are for the past 30 years, is this also true of the other studies? (Chadwick, Robin, UK Met Office)
291	22	10	24	10	44	The title of this section is a little confusing as there is a difference between extreme events (e.g., storms) and climate extremes (e.g., droughts), at least in terms of responses to them, and this section seemed to focus solely on the later and not on the single, one-off extreme events many people associated with the term "extreme event". (UNITED STATES OF AMERICA)
292	22	10	26	10	26	Recent research' - can you cite a paper please? (Bain, Caroline, Met Office)

#	Ch	From Page	From Line	To Page	To Line	Comment
293	22	10	26	10	28	Most models suggest that there will be more rainfall over E.Africa and so fewer droughts. The contrast between this and the recent downward trend of rainfall has yet to be resolved, but there are other plausible theories besides the possibility that model projections for the future are wrong. In particular other climate processes are important in addition to the impact of SSTs stated here. I suggest either discussing these uncertainties and range of processes more fully, or removing this sentence. (Rowell, David, Met Office Hadley Centre)
294	22	10	26	10	28	A reference is needed here (Williams & Funk 2010?). The Lyon & Dewitt hypothesis about the connection of East African drying with Pacific SSTs should also be mentioned as an alternative hypothesis. It is unclear whether these recent droughts are the results of anthropogenic climate change or natural variability. (Chadwick, Robin, UK Met Office)
295	22	10	27	10	27	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
296	22	10	30	10	34	Newer studies over other parts of Africa on observational extremes include Aguilar, E. et al., 2009: Changes in temperature and precipitation extremes in western central Africa, Guinea Conakry, and Zimbabwe, 1955–2006, J. Geophys. Res., 114, D02115, doi:10.1029/2008JD011010, and Donat et al. (2013), Changes in extreme temperature and precipitation in the Arab region: long-term trends and variability related to ENSO and NAO. Int. J. Climatol.. doi: 10.1002/joc.3707. The main results of these should also be referred to in this section. (Caesar, John, Met Office Hadley Centre)
297	22	10	36	10	37	For the described outcome at the end of the century, it could be helpful to indicate whether this occurs across scenarios of climate change. (Mach, Katharine, IPCC WGII TSU)
298	22	10	42	10	42	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
299	22	10	42	10	42	Are floods projected to intensify in magnitude or frequency? This will be of interest to many people so it is important to clarify. (Bain, Caroline, Met Office)
300	22	10	42	10	43	But note that floods might be expected to be less severe elsewhere because of increased evaporation in the warmer air, e.g. see P. Wolski, D. Stone, M. Tadross, M. Wehner, and B. Hewitson. Attribution of floods in the Okavango Basin, Southern Africa. Journal of Hydrology, submitted. (Stone, Dáithí, University of Cape Town)
301	22	10	42	10	44	Does 'intense floods' here refer specifically to runoff, or just heavy precipitation? (Caesar, John, Met Office Hadley Centre)
302	22	10	43	10	43	Casual uses of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
303	22	10	44	10	44	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
304	22	10	49	0	0	Maybe "The section examines the vulnerability of Africa to climate change..."? (Stone, Dáithí, University of Cape Town)
305	22	10	54	10	54	Clarify what "highest" means here. (Caesar, John, Met Office Hadley Centre)
306	22	11	1	11	4	This paragraph is confusing. It was not clear what was being implied. Could the authors attempt to make the meaning of this section, especially the last phrase, more clear? (UNITED STATES OF AMERICA)
307	22	11	1	11	4	The rationale underpinning this statement could be explained further. Detection of impacts of precipitation changes can be done with high confidence, but attribution is challenged?? (Mach, Katharine, IPCC WGII TSU)
308	22	11	1	12	49	22.3.1 - It would be helpful to refer the reader to relevant sections of Ch 12 and 13. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
309	22	11	4	0	0	Increased precipitation in southern Nigeria (Aaron, 2011) has resulted to increases in the loss of farms, forests, pasture and the creation of badlands by expanding gully erosion activities especially around the south eastern areas (Ajaero, 2010). The vulnerability of these landscapes is further enhance by the nature of the soil characterized by low bulk density, high hydraulic conductivity, low organic matter content and hence friability of the soil (Onwuka et al., 2012) References [Aaron Sayne, Climate change Adaptation and Conflict in Nigeria. Special Report 274 of The United States Institute of Peace, 2011] Chukwuedozie Kelechukwu AJAERO, Arinze Tagbo MOZIE. The Agulu-Nanka gully erosion menace in Nigeria: what does the future hold for population at risk? Department of Geography, University of Nigeria, Nsukka. Email:ajaerock@yahoo.co,mTel: +234(0)803-7511-422 Onwuka, S.U.; Okoye, C. O.; Nwogbo, N. The Place of Soil Characteristics on Soil Erosion in Nanka and Ekwulobia Communities in Anambra State. Journal of Environmental Management and Safety, 2012 (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
310	22	11	19	0	0	Section 22.3.1. In further development, this section should be shortened as much as possible. (Mach, Katharine, IPCC WGII TSU)
311	22	11	19	0	0	Section 22.3.1: Please consider ways to condense this section, as this is general background information that can be obtained from other sources. (Mastrandrea, Michael, IPCC WGII TSU)
312	22	11	28	11	37	This suddenly appears discordant - a quick switch from human rights to MDGs? I would make the link more explicit; such that the section flows better. (Archer van Garderen, Emma, CSIR)
313	22	11	28	11	52	There may be need to point out some concise linkable parameters between CC and MDGs (UNITED STATES OF AMERICA)
314	22	11	34	11	35	Please clarify the ways climate change may adversely affect progress towards attaining the MDGs. This is currently unclear. (Mastrandrea, Michael, IPCC WGII TSU)
315	22	11	34	11	37	No citations are provided for this statement, yet it is made a key finding for the chapter. This issue must be addressed. (Mach, Katharine, IPCC WGII TSU)
316	22	11	39	12	49	The executive summary of this chapter refers to significant progress in a number of MDGs including education, gender equality and empowerment of women. The latter two points do not seem to be discussed in much detail in this section. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
317	22	12	1	0	0	Beyond agriculture, mining and energy sectors are undergoing expansion, stimulating growth and adding potentially to state revenues. (Castro, A. Peter, Maxwell School, Syracuse University)
318	22	12	1	12	9	Perhaps this section should reference NEPAD/CAADP plans and goals? (UNITED STATES OF AMERICA)
319	22	12	1	12	49	This whole page is based on various reports from development agencies and not peer reviewed publications. This is clearly below the standard that should be followed by the IPCC (Benjaminsen, Tor A., Norwegian University of Life Sciences)
320	22	12	2	12	2	Regarding stagnant agricultural yields citing UN 2008 - please cite a 2012 source to confirm this. This is a blanket statement and it may need qualifying if there are some places and recent changes that are more positive. (UNITED STATES OF AMERICA)
321	22	12	3	12	3	Delete '(' before 2008. (Burt, Peter, University of Greenwich)
322	22	12	3	12	4	Regarding recent rises in global food prices - again, cites UN 2008 - Are these are as "right" as claimed, given the complete lack of integration with world markets that characterise much African food systems? i.e. there is very little global price influence locally. This blanket statement may obscure a mixed picture Does the UNDP Human Development Report 2012 say more? (this issue comes up again on page 22). (UNITED STATES OF AMERICA)
323	22	12	4	0	0	Would that be mainly the urban poor? (Stone, Dáithí, University of Cape Town)
324	22	12	8	12	8	"for consistency I suggest the use of 'rainfall variability' rather than 'rain variability" (UNITED REPUBLIC OF TANZANIA)

#	Ch	From Page	From Line	To Page	To Line	Comment
325	22	12	15	12	15	I'm assuming that it is not the *lack* of extension services that can prevent utilization and spread of innovations and technologies? (Archer van Garderen, Emma, CSIR)
326	22	12	22	12	26	I am not following here. Global financial crises have tended to be the exception rather than the rule, so in the next several decades we might expect more jobs in the formal sector, right? The reason that "responsibility for subsistence agriculture" might imply that women are more vulnerable is unclear too. It may mean they are more exposed to weather, if, say, the men work in buildings or mines. But I do not see how vulnerability of agricultural productivity to climate necessarily makes the provider more vulnerable; on the contrary it might empower the provider in a closed agricultural market. (Stone, Dáithí, University of Cape Town)
327	22	12	33	12	33	Delete comma after 'tuberculosis'. (Burt, Peter, University of Greenwich)
328	22	12	33	12	35	I would suggest providing a more precise picture about how "malaria is still endemic in most African countries". Some countries have had their malaria morbidity and mortality numbers reduced following major control measures. The chapter should provide references to countries where malaria incidence has been reduced following control measures. (UNITED STATES OF AMERICA)
329	22	12	37	0	0	So 7.8% in total? Or is it more complicated than that? (Stone, Dáithí, University of Cape Town)
330	22	12	39	12	41	The fact that monitoring of extinction status occurred suggests that monitoring is not necessarily bad... (Stone, Dáithí, University of Cape Town)
331	22	12	40	12	41	This sentence reads rather oddly, and should be rewritten. Presumably the facing of extinction doesn't follow on from a lack of monitoring in the way the sentence implies? (Archer van Garderen, Emma, CSIR)
332	22	13	1	0	0	Section 22.3.2: Aside from a box, there is no mention of mountain ecosystems but these will clearly be affected by climate change and exist in Africa. But the Atlas mountain or Rwenzori should also be mentioned. See UNEP's Global Environment Alert Bulletin on this topic published in August 2012 (http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=90). (UNITED STATES OF AMERICA)
333	22	13	1	0	0	Section 22.3.2. In further development, this section should be shortened as much as possible. (Mach, Katharine, IPCC WGII TSU)
334	22	13	1	17	0	wetlands could also be covered under ecosystems or any subsection in this section that would be appropriate. For example of the Okavango delta in Botswana, one of the largest inland deltas in the world is vulnerable to climate change. (Hambira, Wame Lucretia , University of Botswana)
335	22	13	5	13	7	The recommended citation for this chapter should be provided here, in addition to the more casual reference. (Mach, Katharine, IPCC WGII TSU)
336	22	13	7	13	7	Bad English: replace 'like' with 'such as'. (Burt, Peter, University of Greenwich)
337	22	13	7	13	9	The chapter team should clarify if this statement also originates from the 4th assessment report or if it is a conclusion of the current chapter, in which case calibrated uncertainty language should be presented. (Mach, Katharine, IPCC WGII TSU)
338	22	13	10	13	10	Change 'freshwater' to 'fresh water' and delete comma after 'water'. (Burt, Peter, University of Greenwich)
339	22	13	14	0	0	Section 22.3.2.1. This section should be further coordinated with the relevant material and findings of chapter 4, with cross-references provided. (Mach, Katharine, IPCC WGII TSU)
340	22	13	16	13	16	The phrase "a shift in the geographic location" is confusing. It is sort of clarified later in the paragraph, but it might be helpful if the authors rephrased this. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
341	22	13	16	13	50	The claims made here about 'southward shift of biomes' and 'southward expansion of the Sahara' clearly go against the literature on the 'greening' of the Sahel (Olsson 2012 (http://www.eoearth.org/article/Greening_of_the_Sahel), Hiernaux et al 2009 (see reference list), Hiernaux, P., Mougin, E., Diarra, L., Soumaguel, N., Lavenu, F., Tracol, Y. & Diawara, M. (2009) Sahelian rangeland response to changes in rainfall over two decades in the Gourma region, Mali. IN Journal of Hydrology, 375. 114–127, Mougin, E., Hiernaux, P., Kergoat, L., Grippa, M., De Rosnay, P., Timouk, F., Le Dantec, V., Demarez, V., Lavenu, F., Arjounin, M., Lebel, T., Soumaguel, N., Ceschia, E., Mougenot, B., Baup, F., Frappart, F., Frison, P.-L., Gardelle, J., Gruhier, C., Jarlan, L., Mangiarotti, S., Sanou, B., Tracol, Y., Guichard, F., Trichon, V., Diarra, L., Soumaré, A., Koité, M., Dembele, F., Lloyd, C. R., Hanan, N. P., Damesin, C., Delon, C., Serça, D., Galy-Lacaux, C., Seghieri, J., Becerra, S., Diarra, B., Gangneron, F. & Mazzega, P. (2009) The AMMA-CATCH Gourma observatory site in Mali: Relating climatic variations to changes in vegetation, surface hydrology, fluxes and natural resources. IN Journal of Hydrology, 375. 14–33, Reij C, Tappan G, Belemvire A (2005) Changing land management practices and vegetation on the Central Plateau of Burkina Faso (1968–2002). Journal of Arid Environment 63:642–659, Herrmann SM, Anyamba A, Tucker CJ (2005) Recent trends in vegetation dynamics in the African Sahel and their relationship to climate. Global Environmental Change 15:394–404) (Benjaminsen, Tor A., Norwegian University of Life Sciences)
342	22	13	19	13	22	The clear link between southward shift in ecosystems and climate change should be specified. This would give more credibility to the report. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
343	22	13	32	13	32	The second to last word seems to be a spelling error. (UNITED STATES OF AMERICA)
344	22	13	32	13	32	"Can a simpler word be used in place of 'nduextent'" (UNITED REPUBLIC OF TANZANIA)
345	22	13	32	13	32	Change the penultimate word in the line "induextent" (Diouf, Aliou, ENDA Energie-Environnement-Développement)
346	22	13	45	0	0	The CMIPs skipped 4 in their labels. CMIP3? (Stone, Dáithí, University of Cape Town)
347	22	13	45	0	0	Do you mean vegetation model? "Earth system model" is term used in the IPCC to refer to coupled atmosphere-ocean-land-cryosphere-vegetation models covering physical, chemical, and ecological aspects of those systems. (Stone, Dáithí, University of Cape Town)
348	22	13	45	13	45	Capital 'E' for 'Earth' as a proper noun in this context. (Burt, Peter, University of Greenwich)
349	22	13	45	13	45	The reference to CMIP4 GCMsis most likely a typo. Almost certainly should be either CMIP3 or CMIP5. Please investigate and correct. (UNITED STATES OF AMERICA)
350	22	14	1	14	2	Bad English, but I am not clear what you mean. (Burt, Peter, University of Greenwich)
351	22	14	7	14	7	Split infinitive: move 'directly' to after 'shift'. (Burt, Peter, University of Greenwich)
352	22	14	7	14	7	Change to 'Normalised Difference Vegetation Index' (Burt, Peter, University of Greenwich)
353	22	14	8	14	8	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
354	22	14	10	14	10	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
355	22	14	10	14	10	Please give taxonomic details (genus, species) of the aloe. (Burt, Peter, University of Greenwich)
356	22	14	13	14	13	Is this all species or some species? (Burt, Peter, University of Greenwich)
357	22	14	18	0	0	Section 22.3.2.1.1. This subsection should also be further coordinated with relevant material and findings from chapter 4, with cross references provided. (Mach, Katharine, IPCC WGII TSU)
358	22	14	18	15	34	Section 22.3.2.1.1: The Forest section is often badly worded and needs greater elaboration. For example, what does line 43 mean "The forests are at a cross roads between development and conservation." Also, REDD+ if mentioned should be discussed in detail and its potential utility and challenges discussed in detail. One sentence on first experiences is insufficient. What does line 48 to 49 mean? This should should be taken out or expanded. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
359	22	14	20	14	34	The importance of trees outside forests (farmland, pasture, savanna) ought to be acknowledge, as they play major economic, environmental and cultural roles within communitie. For example, see J. Arnold and P. DeWees (eds), Tree Management in Farmer Strategies, which contains many classic articles on African rural practices (Castro, A. Peter, Maxwell School, Syracuse University)
360	22	14	29	14	29	"I propose we replace 'They also are' with 'They are also'" (UNITED REPUBLIC OF TANZANIA)
361	22	14	39	14	39	Biofuels may not be the correct term, wood for energy (either as fuel wood or charcoal) is a major driver. While biofuels may be technically correct, it carries certain meanings that are not as accurate. (UNITED STATES OF AMERICA)
362	22	14	45	14	46	African deforestation contributes 20% of global emissions? This sounds high... (Stone, Dáithí, University of Cape Town)
363	22	15	1	15	1	I disagree with the use of the word 'desertification' as it gives a false impression of the projections - it would be better to use the phrase 'ecosystem changes in the Sahel' as there is no suggestion in the report that the Sahel will become a complete desert. In fact the projections in Figure 22-1 indicate rainfall increases across a lot of the Sahel. (Bain, Caroline, Met Office)
364	22	15	3	15	3	Analyses of the impacts of climate change on Sahel vegetation...' (Bain, Caroline, Met Office)
365	22	15	3	15	34	I find this section on 'Desertification in the Sahel' rather biased and speculative. Literature has been cherry-picked, while other studies going against the idea of 'desertification' have been excluded (see above for some references). A whole region in Mali (the Gourma region covering 90 000 km2) with several empirical studies questioning the idea of an advancing desert is merely metioned as 'one site in Mali'. (Beniaminsen. Tor A., Norwegian University of Life Sciences)
366	22	15	10	15	10	replace 'any' with 'the' (Bain, Caroline, Met Office)
367	22	15	23	15	34	What about the regreening that has occurred in Niger since the 1970s? A number of studies have shown significant increases in tree cover in recent decades. This should also lead to a discussion of land and resource tenure and its importance to forest preservation. (UNITED STATES OF AMERICA)
368	22	15	34	15	34	...it indicates how climate change may exacerbate ecosystem change in the Sahel' (Bain, Caroline, Met Office)
369	22	15	37	0	0	Section 22.3.2.2. This subsection should be further coordinated with relevant material and findings from chapters 3 and 4, with cross-references provided. (Mach, Katharine, IPCC WGII TSU)
370	22	15	39	15	40	For this potential impact, the relevant scenarios of climate change and timeframe should be specified, along with relevant assumptions. For example, how important is the role of climate change as compared to other drivers, and more specifically, can the nature of the serious risk be indicated? (Mach, Katharine, IPCC WGII TSU)
371	22	15	40	15	40	"I propose the deletion of the word 'be' from 'from mainly be through'" (UNITED REPUBLIC OF TANZANIA)
372	22	15	43	15	45	It would be helpful to clarify if the mentioned high variability is associated with natural variability as compared to climate change, over what time frame it has occurred, and the relevance of other drivers of change. (Mach, Katharine, IPCC WGII TSU)
373	22	15	43	15	47	Change "The East African River Valley" to read the African rift valley? Need to clearly state that the triple increase in Lake Beseka surface area is not linked to climate change. (NETHERLANDS)
374	22	15	52	15	54	A reference is needed for this sentence. Seems like there are a number of other drivers of flow in rivers beyond just rainfall, not least of which is demand from irrigation, and this sentence could lead to the wrong conclusion that just because flow has decreased, that implies that rainfall has decreased, which is not always the case. (UNITED STATES OF AMERICA)
375	22	15	53	15	54	The statement "Nevertheless, the amount of water inflow for rivers like the Congo, Nile, and Zambezi are determined mainly by the amount of rainfall within their catchments, a process that is influenced by temperature" leaves out other important factors such land use which also influences river inflow. (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
376	22	15	54	15	54	remove 'a process that is influenced by temperature' as the relationship between temperature and rainfall is non-linear and varies hugely from region to region, hence causality cannot be suggested. (Bain, Caroline, Met Office)
377	22	16	1	16	1	Which region is being discussed? All of Africa? Not clear as written. (UNITED STATES OF AMERICA)
378	22	16	2	16	2	It would be helpful to specify the relevant drivers for this observation and the timeframe over which it has occurred. (Mach, Katharine, IPCC WGII TSU)
379	22	16	2	16	17	Most of the literature cited largely ignores the impacts of human uses on river inflows and lake levels. The statement that moderate warming is reducing lake water inflows and therefore nutrients is not entirely correct. Many basins in Africa are under stress because of increased water use. For instance hydropower water release in lake Victoria and also Kariba may be contributing to the fluctuating water levels, over fishing may be a major factor in the decrease of fish stock in Kariba dam, upstream water and land use in the Victoria and Zambezi basin could be reducing inflow. The authors should consider highlighting some of this in the text as well. (NETHERLANDS)
380	22	16	12	16	12	Capital 'L' required for 'lakes' in this context as proper nouns. (Burt, Peter, University of Greenwich)
381	22	16	12	16	12	"I propose the use of 'Nyasa' rather than 'Malawi'" (UNITED REPUBLIC OF TANZANIA)
382	22	16	24	16	24	Capital 'L' required for 'lakes' in this context as proper nouns. (Burt, Peter, University of Greenwich)
383	22	16	24	16	24	" as said in the general remarks and for consistency replace 'Malawi' with 'Nyasa' " (UNITED REPUBLIC OF TANZANIA)
384	22	16	24	16	24	"I propose the use of 'Nyasa' rather than 'Malawi'" (UNITED REPUBLIC OF TANZANIA)
385	22	16	25	16	25	Delete comma after 'tanganyika'. (Burt, Peter, University of Greenwich)
386	22	16	32	0	0	Section 22.3.2.3. The material throughout this section and all of its subsections should be carefully coordinated with the assessment and findings of chapters 5, 6, and 30, with cross-references provided wherever relevant. (Mach, Katharine, IPCC WGII TSU)
387	22	16	32	17	54	The issue of upwelling and downwelling should be added to coastal fisheries. (UNITED STATES OF AMERICA)
388	22	16	34	16	34	climate change factors...' (Bain, Caroline, Met Office)
389	22	16	34	16	43	To which could be added the flood-multiplier effects of large dams in southern Africa disrupting transboundary flow rates and affecting downstream states' coastal flood plain areas (Bunce, Matthew, Institute of Marine Engineering, Science and Technology)
390	22	16	37	16	38	This statement should be more directly supported by relevant citations, as for example the role of climate change in the subsequent example is not completely clear. (Mach, Katharine, IPCC WGII TSU)
391	22	16	37	16	43	Please clarify why concern is increasing as stated here. What evidence supports this? In addition, please be clear about distinctions between climate variability and climate change as well as their interactions. (Mastrandrea, Michael, IPCC WGII TSU)
392	22	16	38	16	39	For example, a storm swell up to...' (Bain, Caroline, Met Office)
393	22	16	41	16	41	remove '(' and add a ',' (Bain, Caroline, Met Office)
394	22	16	51	0	0	Have been estimated? (Stone, Dáithí, University of Cape Town)
395	22	16	51	16	51	Was this an analysis of projected outcomes? If so, "projected" may be clearer in place of "determined." (Mach, Katharine, IPCC WGII TSU)
396	22	16	52	16	54	It might be helpful to indicate if the assessment risk is owing completely to sea level rise, or other other impacts as well. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
397	22	17	19	17	30	It might be helpful to indicate that climate change will cause a rise in mean sea level, but it is really relative sea level rise that is important, and that this relative sea level rise is dependent on both climate and non-climate factors and so will vary along the coasts of Africa. Also this section focuses solely on sea level rise, is that the only coastal impact of importance in Africa, or the only one for which we have any sense of certainty? What about storms, in terms of both frequency and magnitude? (UNITED STATES OF AMERICA)
398	22	17	21	0	0	Which authors? (Stone, Dáithí, University of Cape Town)
399	22	17	21	17	21	Which authors are referenced here? Please clarify. (Mastrandrea, Michael, IPCC WGII TSU)
400	22	17	21	17	22	Vulnerability to the ocean, sure, but it might decrease its vulnerability to other factors. (Stone, Dáithí, University of Cape Town)
401	22	17	23	20	24	What is WIO mentioned in page 17 line 51? Zinyengere et al. cited just been submitted, cannot be verified to confirm the impact of climate change on maize yield losses in Southern Africa. Generalisation from such a study may be misleading (NETHERLANDS)
402	22	17	24	17	24	Diamond mining could also be affected.' - how? Where is this information coming from? Is there a citation? (Bain, Caroline, Met Office)
403	22	17	24	17	24	...the risks are almost everywhere along the coast, with...' (Bain, Caroline, Met Office)
404	22	17	24	17	24	How could diamond mining be affected? Please clarify. (Mastrandrea, Michael, IPCC WGII TSU)
405	22	17	29	17	30	Is there no more detail here? This suddenly seems rather short, compared to preceding sections. (Archer van Garderen, Emma, CSIR)
406	22	17	29	17	30	So Western and Northern Africa (including such places as Lagos and the Nile Delta) get less treatment here than Walvis Bay? (Stone, Dáithí, University of Cape Town)
407	22	17	33	0	0	Section 22.3.2.3.2: Please focus on material relevant to Africa in this section, cross-referencing relevant discussions in chapters 5, 6, and 30 for more general material rather than discussing it in detail here. (Mastrandrea, Michael, IPCC WGII TSU)
408	22	17	35	17	35	Presumably this 1st statement pertains to coastal fisheries, not necessarily all fisheries, which could be clarified as relevant. (Mach, Katharine, IPCC WGII TSU)
409	22	17	35	17	54	Should possible changes in upwelling be mentioned here? I know there is a ton of uncertainty associated with whether climate change will affect up and downwelling patterns, but as a number of fisheries in Africa are very tied to these patterns, and changes in them can affect significantly local fish abundance (at least in the short term), would it be helpful to at least give this passing mention. (UNITED STATES OF AMERICA)
410	22	17	40	0	0	Important for whom? (Stone, Dáithí, University of Cape Town)
411	22	17	40	17	43	The coverage of the impact on coral reefs is weak. The situation could easily be improved by adding links to chapter 5 5.4.2.4) and the cross-chapter box CC-CR. (Gattuso, Jean-Pierre, Centre National de la Recherche Scientifique)
412	22	17	42	17	43	22.3.2.3.2. This assessment appears somewhat narrow with respect to its focus on coral reefs and ocean acidification. As mentioned earlier warming and associated consequences like stratification appear more crucial presently as developed by chapter 6 that would offer a possible reference. (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
413	22	17	46	17	54	This discussion focuses on global fisheries and coral reefs. The section or statistics should be specific to Africa. (UNITED STATES OF AMERICA)
414	22	17	46	17	54	But this chapter is about Africa. (Stone, Dáithí, University of Cape Town)
415	22	17	52	17	52	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
416	22	17	52	17	54	Again, this assessment appears somewhat narrow with respect to its focus on coral reefs and ocean acidification. As mentioned earlier warming and associated consequences like stratification appear more crucial presently as developed by chapter 6 that would offer a possible reference. Please also consider the distribution shifts of marine species. (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
417	22	18	3	0	0	Section 22.3.3. In the further development of this section, the chapter team should continue to coordinate with the assessment and findings of chapter 3, providing cross-references wherever relevant. Additionally, the section should be tightened and shortened further. (Mach, Katharine, IPCC WGII TSU)
418	22	18	5	18	12	Most of the projections are based on AR4 GCMs, but would be important to include any studies using CMIP5 projections. (UNITED STATES OF AMERICA)
419	22	18	5	18	19	This section on water should underline more concern. There is also inconsistency between line 5 and lines 9-10 ("knowledge has advanced.....caution"). (UNITED STATES OF AMERICA)
420	22	18	5	19	47	Please consider adding a water quality discussion. (UNITED STATES OF AMERICA)
421	22	18	5	19	47	The discussion of future climate change impacts on water resources is mainly focused on specific basins and could be bolstered by discussion of some pan-African studies: Faramarzi, Monireh; Abbaspour, Karim C.; Vaghefi, Saeid Ashraf; et al. 2013: Modeling impacts of climate change on freshwater availability in Africa. JOURNAL OF HYDROLOGY Volume: 480 Pages: 85-101 DOI: 10.1016/j.jhydrol.2012.12.016. Published: FEB 14 2013 AND de Wit, M; Stankiewicz, J, 2006: Changes in surface water supply across Africa with predicted climate change. SCIENCE Volume: 311 Issue: 5769 Pages: 1917-1921 DOI: 10.1126/science.1119929 Published: MAR 31 2006 (UNITED STATES OF AMERICA)
422	22	18	5	19	47	The water resources assessment seems off target. As stated in the executive summary, there is high confidence that climate change impacts on water availability are uncertain, and water is the primary medium through which climate change impacts will be felt. This seems to lead to the conclusion that there is high confidence in the uncertainty of climate change impacts. "Spatial heterogeneity" might usefully replace "uncertain" in this executive summary element. Furthermore, there was general agreement within the various section of the Africa chapter, that the likelihood of climate change impacts covaried strongly with climatological aridity patterns. The literature suggests that "water-related climate change impacts in arid and semi-arid regions seem moderately certain, while water-related climate change impacts in humid regions seem uncertain"? Given the vast climate gradients in Africa, lumping humid and arid ecotones seems problematic, and may hide fairly certain and dangerous temperature impacts, for some regions or climatic regimes. If there are high risks in certain areas, these could be better identified. (UNITED STATES OF AMERICA)
423	22	18	7	18	7	citation needed for 'long-term studies' (Bain, Caroline, Met Office)
424	22	18	7	18	8	This conclusion seems a bit confusing, essentially we are saying that we have only low confidence in an effect not occurring. Also, this effect is likely very nuanced depending on where you are geographically in Africa, so while the continent as a whole may not experience water scarcity, is it not still quite possible that certain areas will, both because of decreasing (or more erratic) supplies and increasing demand (due to warmer temperatures)? (UNITED STATES OF AMERICA)
425	22	18	14	18	15	Similar to the comment above, given the huge variation in climates in Africa from the tropical rainforests to the deserts, the authors should be very careful about making general statements concerning the effects on the availability of water. These statements at least have to be caveated with the nuance of geographical dependence. (UNITED STATES OF AMERICA)
426	22	18	31	0	0	The following article may be suitable for this paragraph since it assesses the most important river in Kenya: 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. Hydrological Research Letters., Vol. 6, pp.29-34, (2012) . (Nakaegawa, Toshiyuki, Meteorological Research Institute)

#	Ch	From Page	From Line	To Page	To Line	Comment
427	22	18	31	19	20	There are a lot of “could”s in these paragraphs, which does not indicate whether it is likely or not. (Stone, Dáithí, University of Cape Town)
428	22	18	32	18	32	How have you reached the conclusion of 'high confidence'? There is disagreement in models over the magnitude in change of southern African rainfall. Suggest this should be downgraded or omitted (Bain, Caroline, Met Office)
429	22	18	37	0	0	could also add to the literature: Hambira, Wame L. (2011). Screening for Climate change vulnerability in Botswana’s tourism sector in the bid to explore suitable adaptation measures and policy implications: A case study of the Okavango Delta. International Journal of Tourism Policy. Vol. 4, No. 1, pp. 51-65. (Hambira, Wame Lucretia , University of Botswana)
430	22	18	41	18	41	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
431	22	18	43	18	44	Is there a record of historical rate of Atlas mountain glacial melt? (UNITED STATES OF AMERICA)
432	22	18	46	0	0	Nakaegawa et al. (2013) projected the significant increase in river discharge in the main stream of Nile River under A1B but not the entire Nile basin. The estimated uncertainties are low as well. In addition, significant increase with low uncertainties are found in January to April at the gauging station of the Nile River.. (Nakaegawa, Toshiyuki, Meteorological Research Institute)
433	22	18	46	19	11	Other references for the Nile basin; see also previous point: • Taye M.T., Ntegeka V., Ogiramoi N.P., Willems P. (2011), ‘Assessment of climate change impact on hydrological extremes in two source regions of the Nile River Basin’, Hydrology and Earth System Sciences, 15, 209-222 • Taye, M.T., Willems, P. (2011). ‘Influence of climate variability on representative QDF predictions of the upper Blue Nile Basin’, Journal of Hydrology, 411, 355-365 (Willems, Patrick, KU Leuven)
434	22	18	50	18	50	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
435	22	18	52	18	52	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
436	22	19	1	19	1	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
437	22	19	1	19	47	This discussion of ground water depletion is simplistic and may give the impression that climate change is the primary driver affecting groundwater resources, when this is due to technological development, population growth, etc. This complexity should be acknowledged. Also, the science itself is still unclear, as described in the January 2012 Global Environment Alert Bulletin (GEAS) by UNEP (http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=76): In spite of a growing global reliance on groundwater, there are still large uncertainties about the volume, distribution, recharge and withdrawal of the planet's groundwater resources (8). Various estimates of total global groundwater storage disagree by more than an order of magnitude, (38,39). Historically, most global estimates of groundwater recharge have been built upon data collected at national and sub-national scales, which may be estimated by different methods and based upon differing definitions and which are often out of date (8,38,40). International efforts to improve compatibility and completeness of global groundwater data have made some progress in developing international standards for data collection (38). Recent estimates of global groundwater recharge have used sophisticated hydrological models which have the advantage of consistency across national boundaries but remain difficult to validate (15,40) (UNITED STATES OF AMERICA)
438	22	19	3	19	4	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
439	22	19	11	0	0	Nakaegawa et al. (2013) supported the minimal or insignificant annual mean changes at the gauge station under A1B but significant decrease in most lower regions of the Congo River basin with low uncertainty. In addition, significant increase with low uncertainties are found in January to April at the gauging station of the Congo River as well as the Nile River. This is due to increase in precipitation in this season in the tropical Africa. (Nakaegawa, Toshiyuki, Meteorological Research Institute)
440	22	19	13	19	13	'et al' should be in italics, with a full stop after the 'I' and a comma after the full stop. (Burt, Peter, University of Greenwich)
441	22	19	13	19	20	It should be noted that understanding linkages between groundwater and climate change in Africa is hindered by lack of comprehensive groundwater/aquifer mapping in many parts of the continent (e.g See Taylor et al., 2012). (UNITED STATES OF AMERICA)
442	22	19	13	19	20	This section seems to be poorly nuanced and misleading. Deepwater aquifers typically have very slow recharge rates, so short term changes in rainfall would not affect their levels, while aquifers closer to the surface respond much more quickly to seasonal and yearly changes in rainfall, and thus are more exposed to climate change. Conversely, drawing down deepwater aquifers may have more significant long term effects than for shallow aquifers given the much slower recharge rate of these deeper aquifers. (UNITED STATES OF AMERICA)
443	22	19	14	19	15	Split infinitive: move 'directly' to after 'year'. (Burt, Peter, University of Greenwich)
444	22	19	15	19	15	'per' should be in italics. (Burt, Peter, University of Greenwich)
445	22	19	18	19	18	'per' should be in italics. (Burt, Peter, University of Greenwich)
446	22	19	22	19	29	As written this section implies that coastal aquifers are not affected by changes in rainfall patterns? Is this the intended message? (UNITED STATES OF AMERICA)
447	22	19	34	19	34	Insert comma after ';Thus'. (Burt, Peter, University of Greenwich)
448	22	19	37	19	47	This paragraph seems out of place in a section titled "vulnerability and impacts". (Stone, Dáithí, University of Cape Town)
449	22	19	41	19	41	'et al' should be in italics, with a full stop after the 'I' and a comma after the full stop. (Burt, Peter, University of Greenwich)
450	22	19	41	19	42	This statement about groundwater is worrisome because it appears to be comparing all groundwater (both renewable and essentially non-renewable on realistic timescales) with just annual renewable freshwater resources. This could lead some to conclude that we should just mine the groundwater. While factually correct, it needs to be better caveated in the groundwater section what the actual characteristics of the groundwater resource is. (UNITED STATES OF AMERICA)
451	22	19	50	0	0	Section 22.3.4. In the further development of this section, the chapter team should continue to coordinate with the assessment and findings of chapter 7, providing cross-references wherever relevant. Additionally, the section should be shortened as much as possible. (Mach, Katharine, IPCC WGII TSU)
452	22	19	51	24	2	While the authors implicitly recognize that Africa is divided into regions and countries that vary much in their context, they fail to sufficiently substantiate attributions of climate change in the food security crops of different regions, with of course a few exceptions in southern Africa and eastern Africa. The authors need to reassign level of probabilities of changes in production of major staples in each region since there is high confidence that climate change is likely to have an overall negative effect on yields e.g of cereals in Africa. A generalized probabilities of changes in yields can be made for Sahel/West Africa, central Africa as they have done from southern and eastern Africa. (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
453	22	19	52	0	0	Perhaps mention that African agriculture systems are also highly resilient due to farming practices, crop varieties, and social mechanisms such as share herding and labor exchange, which foster rapid recovery, even among poorer households; for example, see Peter Little et al. "Moving in Place: Drought and Poverty Dynamics in South Wollo, Ethiopia," <i>Journal of Development Studies</i> 42 (2), 2006, pp. 200-225 (Castro, A. Peter, Maxwell School, Syracuse University)
454	22	20	0	0	0	I suggest to add this figure : http://iopscience.iop.org/1748-9326/8/1/014040/article#erl450197fig2 from the paper of Sultan et al. (2013). Indeed it clearly points out that future adverse climate impacts on crop yields in West Africa have no equivalents in historical conditions, for which the main controlling variable was rainfall variation. In all climate change scenarios, the projected yield decrease is modelled to be as severe as, or more severe than, during the record droughts of the 1970s and 1980s, which had dramatic consequences. The exact reference is "Sultan B., Roudier P., Baron C., Quirion P., Muller B., Alhassane A., Ciais P., Guimberteau M., Traoré S.B. and M. Dingkuhn (2013) Assessing climate change impacts on sorghum and millet yields in the Sudanian and Sahelian savannas of West Africa, <i>Environ. Res. Lett.</i> 8 014040 doi:10.1088/1748-9326/8/1/014040." (NOTE: Please refer to the supporting material page for the figure and caption) (Sultan, benjamin, IRD)
455	22	20	2	0	0	Calestous Juma's <i>The New Harvest</i> (Oxford, 2011) might be worthwhile referencing in discussions on African agriculture. It is especially worthwhile regarding institutional and policy changes that might promote technological innovation (Castro, A. Peter, Maxwell School, Syracuse University)
456	22	20	2	20	12	Is it not worth mentioning here in the introduction to this section how livestock systems themselves may also be vulnerable? It is mentioned later on, but should it not also be mentioned in the introduction? (Archer van Garderen, Emma, CSIR)
457	22	20	5	0	0	In this section, we could mention the work of Sultan et al. (2013) who found evidences of major crop yield losses of the main staple food crops (sorghum and millet) in Africa mainly due to the increase of temperatures. The exact reference is "Sultan B., Roudier P., Baron C., Quirion P., Muller B., Alhassane A., Ciais P., Guimberteau M., Traoré S.B. and M. Dingkuhn (2013) Assessing climate change impacts on sorghum and millet yields in the Sudanian and Sahelian savannas of West Africa, <i>Environ. Res. Lett.</i> 8 014040 doi:10.1088/1748-9326/8/1/014040 " (Sultan, benjamin, IRD)
458	22	20	5	0	0	"likely" italicised? (Stone, Dáithí, University of Cape Town)
459	22	20	5	20	5	If "likely" is being used as a likelihood term, reflecting a probabilistic basis for its assignment, it should italicize. Casual usage of the reserved likelihood term should be avoided. (Mach, Katharine, IPCC WGII TSU)
460	22	20	6	20	12	This section could make more of the fact that climate change actually represents enormous opportunities for livestock keepers, who are held back by numerous factors (decreasing mobility due to borders, suspicion by central and urban governments, a feeling pastoralists are "primitive" and trouble makers, lack of services etc). The idea of pastoralism as a viable and profitable climate change related economic resource/system has been well brought out in e.g. "Modern and Mobile" report by IIED: http://www.iied.org/african-livestock-can-triumph-face-climate-change . See also Escaping the Hunger Cycle, pathways to resilience in the Sahel - Sahel Working Group September 2011 http://www.e-alliance.ch/fileadmin/user_upload/docs/Publications/Food/20... (UNITED STATES OF AMERICA)
461	22	20	15	0	0	Section 22.3.4.1: Please ensure consistency between the calibrated uncertainty language in this section and in the executive summary. (Mastrandrea, Michael, IPCC WGII TSU)
462	22	20	17	0	0	"very likely" italicised? (Stone, Dáithí, University of Cape Town)
463	22	20	17	20	17	If "very likely" is being used as a likelihood term, reflecting a probabilistic basis for its assignment, it should be italicized. Casual usage of the reserved likelihood term should be avoided. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
464	22	20	17	20	28	Given the large uncertainty in current GCMs (CMIP3 & CMIP5) projections of precipitation over many regions of Africa, uncertainty envelopes are necessary when referring to crop yield projections, and should be better presented in this section. (UNITED STATES OF AMERICA)
465	22	20	23	20	24	Losses due to what? It seems unusual referencing past losses against the current (diminished) value, rather than earlier (peak) values. (Stone, Dáithí, University of Cape Town)
466	22	20	24	20	24	I am not happy about citing references as 'submitted'. What happens if they are not published (and worse, if flaws in the data/methodology arise during review)? (Burt, Peter, University of Greenwich)
467	22	20	30	0	0	"likely"? Is this not trivial, that impacts will not be *exactly* the same? (Stone, Dáithí, University of Cape Town)
468	22	20	30	20	30	If "likely" is being used as a likelihood term, reflecting a probabilistic basis for its assignment, it should be italicized. Casual usage of the reserved likelihood term should be avoided. (Mach, Katharine, IPCC WGII TSU)
469	22	20	30	22	12	There are a lot of "could"s here. (Stone, Dáithí, University of Cape Town)
470	22	20	31	20	31	Subscript '2' in 'CO2' required (Burt, Peter, University of Greenwich)
471	22	20	49	20	49	Is the chapter team here referring to a 2°C global mean temperature increase? This could be clarified. (Mach, Katharine, IPCC WGII TSU)
472	22	20	54	20	54	Consider adding a comment on contrasting population growth and agricultural extensification, versus intensification. Africa has primarily maintained its agricultural supply through extensification, which will likely interact with temperature increases in dangerous ways. (UNITED STATES OF AMERICA)
473	22	21	8	0	0	This paragraph needs to cross-reference chapter 7. (Yao, Xiangjun, Food and Agriculture Organization of the United Nations (FAO))
474	22	21	13	21	14	Are there no more recent references available here? (Archer van Garderen, Emma, CSIR)
475	22	21	15	23	12	This chapter draws very heavily on results based on crop models driven with coupled model outputs; these outputs have a high degree of uncertainty, and this uncertainty needs to be better represented in the discussion. The section could also benefit greatly from more analysis and discussion based on research focusing on OBSERVED trends and simulations driven with OBSERVED data. The singular emphasis on climate change simulations ignores many valid and pertinent avenues to knowledge. (UNITED STATES OF AMERICA)
476	22	21	16	21	37	In the crop section it is indicated that changes in climate will make some areas no longer suitable for farming, but still suitable for pastoralism. The question then is if the reduction in pastoral lands from climate change is greater than the increase in lands available as farming moves south. This should be addressed, as it is probably as much a policy issue as a physical issue. (UNITED STATES OF AMERICA)
477	22	21	21	21	21	Insert 'by' after 'increase'. (Burt, Peter, University of Greenwich)
478	22	21	27	21	27	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
479	22	21	27	21	27	'per' should be in italics. (Burt, Peter, University of Greenwich)
480	22	21	30	21	37	Some solid references, but more to to date references should here also be included. (Archer van Garderen, Emma, CSIR)
481	22	21	30	21	37	In a recent paper we documented how climate variability has influenced cattle in Africa the last 50 years. Precipitation is the main driver, but only influence cattle in dry environments. It is uncertain if responses to climate variability can be translated to climate change. Temperature does not seem to have influenced national cattle holdings to a large degree. In AR4 it was stated that "changes in range-fed livestock numbers in any African region will be directly proportional to changes in annual precipitation". This seems to be wrong, and should be clarified in AR5. 1) Lunde et al. (2013) Cattle and climate in Africa: How climate variability has influenced national cattle holdings from 1961–2008. PeerJ 1:e55 http://dx.doi.org/10.7717/peerj.55 (Lunde, Torleif Markussen, University of Bergen)

#	Ch	From Page	From Line	To Page	To Line	Comment
482	22	21	40	0	0	Section 22.3.4.3: This material is summarized with high confidence in the executive summary. Please clarify the differences here. (Mastrandrea, Michael, IPCC WGII TSU)
483	22	21	43	21	43	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
484	22	21	53	0	54	Omission of genetically-modified banana; these could have different response to the projection/mentioned temperature increase (see literature on tissue culture banana technology in Kenya by KARI (Kenya agriculture research institute) (Mwangi, Margaret, Pennsylvania State University)
485	22	22	2	22	2	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
486	22	22	3	22	3	Mycosphaerella fijiensis' should be in italics. (Burt, Peter, University of Greenwich)
487	22	22	5	22	12	CC impacts of pests and diseases should be distinctly discussed and not get mixed up with CC impacts on invasive weeds (UNITED STATES OF AMERICA)
488	22	22	6	22	6	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
489	22	22	8	22	8	Striga' should be in italics. (Burt, Peter, University of Greenwich)
490	22	22	15	0	0	Section 22.3.4.4. The chapter team should consider merging this section with 22.3.2.3.2. (Mach, Katharine, IPCC WGII TSU)
491	22	22	15	22	44	22.3.4.4. you could refer to ch 30.5. fishery regions are included in some subsections. chapter 6 offers projections of future redistribution of fishery catch potential (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
492	22	22	17	22	44	The section on fisheries is repetitive. It seems to be covered in other areas of the chapter related to lakes and also coasts. (UNITED STATES OF AMERICA)
493	22	22	21	22	21	Insert 'by' after 'increase'. (Burt, Peter, University of Greenwich)
494	22	22	23	22	34	Possible changes in upwelling should be discussed. Also, are there any differences between the effects on marine, coastal and inland fisheries? Are the climate impacts expected to be relatively more important in one area than another? (UNITED STATES OF AMERICA)
495	22	22	26	22	26	The reference M.K. Chanded and al, in prepartation, Plos journal should be completed... (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
496	22	22	30	22	30	how many reefs are affected on African coasts? A good general reference would be the CC Box Coral Reefs which gives examples for regional variety for damaged/destroyed reef regions. If you could provide more details, the confidence level in the Executive summary would result more plausible (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
497	22	22	30	22	30	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
498	22	22	31	22	31	Delete comma after 'Seychelles'. (Burt, Peter, University of Greenwich)
499	22	22	31	22	32	you may refer to 30.5.4.1.5. East Africa coast and Madagascar. They provide confidence levels (Menzel, Lena, Alfred Wegener Institute for Polar and Marine Research)
500	22	22	36	22	44	And this does not take into account additional poaching offshore by foreign fleets, whose own patterns of activity may equally be affected by climate change in other regions - causing displacements of fishing effort from those regions and the implication of local Africa fishers in these illegal activities (Bunce, Matthew, Institute of Marine Engineering, Science and Technology)

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501	22	22	38	22	38	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
502	22	22	40	22	40	Delete comma after 'Senegal'. (Burt, Peter, University of Greenwich)
503	22	22	41	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
504	22	22	47	23	18	Nowadays the focus of most country's policy is on food sovereignty than food security. As this may affect adaptation strategies to climate change, the authors need to consider including food sovereignty in their discussion as well (NETHERLANDS)
505	22	23	1	23	9	It should be made clear that there is a difference between food production (i.e., the actual production of food) and food security (i.e., the physical access to food). Just because food production decreases does not automatically imply that food security has also decreased, this depends on a number of other factors. This is made implicitly clear in the discussion about urbanization on lines 11-14, and this discussion should be moved forward when defining food production vs food security. (UNITED STATES OF AMERICA)
506	22	23	2	0	0	Thinking that most rural poor work on the food production side, would not higher food prices be beneficial in an economic sense? (Stone, Dáithí, University of Cape Town)
507	22	23	7	23	7	Split infinitive: move 'better' to after 'understand'. (Burt, Peter, University of Greenwich)
508	22	23	9	0	0	Rising food prices in 2007-2008 accelerated the rush for farmland in Africa among global investors. This has intensified competition for land, as well as resulted in displacement and resettlement of communities. This has been covered mainly by NGOs such as the Oakland Institute, though the Journal of Peasant Studies and other academic sources have covered it as well. (Castro, A. Peter, Maxwell School, Syracuse University)
509	22	23	11	23	15	consider the following literature: Lane, K., Hovorka, A., and Legwegoh, A. (2012). Urban food dynamics in Botswana: insights from Gaborone's Central Business District. African Geographical Review. 1-15 (Hambira, Wame Lucretia , University of Botswana)
510	22	23	16	23	17	Do we have any indication that floods are more likely in the future? (Stone, Dáithí, University of Cape Town)
511	22	23	21	0	0	This subsection is not following the pattern within 22.3 of discussing vulnerability to and impacts of climate change. Instead it is considering vulnerability to and impacts of economic planning. (Stone, Dáithí, University of Cape Town)
512	22	23	21	23	53	This section could discuss more strongly the impact of foreign direct agricultural investments in Africa - land grabbing. The emphasis on biofuel though relevant misses some important points in this topic. It is true we need to characterize biofuel crops, but the main point is their impact on livelihood security of poor farmers. See our comments above row 9 on chapter 22 page 4. (NETHERLANDS)
513	22	23	23	24	2	Much of what is discussed here has little to do with climate change impacts or adaptation. Can the authors make the connections more clear? (UNITED STATES OF AMERICA)
514	22	23	30	23	30	Delete comma after 'pastoralists': all these depend on the land resource base, not just the migrant farmers. (Burt, Peter, University of Greenwich)
515	22	24	5	0	0	Section 22.3.5. In the further development of this section, the chapter team should continue to coordinate with the assessment findings of Chapter 11, providing cross-references wherever relevant. Additionally, the section should be shortened as much as possible. (Mach, Katharine, IPCC WGII TSU)
516	22	24	5	27	13	It is very encouraging to see such a large section vector borne diseases - but I'm concerned that there is next to nothing on heat stress and air quality/climate change interactions? (Archer van Garderen, Emma, CSIR)
517	22	24	9	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
518	22	24	11	24	15	This could be shortened and more focused on Africa. (Stone, Dáithí, University of Cape Town)
519	22	24	12	24	12	repeat of the word 'malaria' (Bain, Caroline, Met Office)

#	Ch	From Page	From Line	To Page	To Line	Comment
520	22	24	14	24	16	There is a reference to deaths from diarrhea on page 24 lines 14-16 regards 1 in 5 deaths citing 2009 WHO and UNICEF reports; this may longer be correct - WHO figures are more like 10-11% of under 5 deaths are now from diarrhea and reflect a steady falling trend. (UNITED STATES OF AMERICA)
521	22	24	23	26	2	The climate change component of the impact of Leishmaniasis should be carefully characterized. For example, dam construction were not designed as a response to climate change although the environmental modifications arising from them have an influence on the composition of sandfly species and rodent vectors. Dams were constructed for hydro electric power, irrigation among other reasons not necessarily climate change (NETHERLANDS)
522	22	24	24	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
523	22	24	26	24	26	I am not happy about citing references as 'in prep.'. What happens if they are not published (and worse, if flaws in the data/methodology arise during review)? (Burt, Peter, University of Greenwich)
524	22	24	26	24	26	M.K. Chahed and al, in preparation, Plos journal is missing in the reference but also can not be confirmed as peer reviewed! Replace with suitable article (NETHERLANDS)
525	22	24	29	0	0	Perhaps: "Current impacts and projections of future impacts" make more sense? (Stone, Dáithí, University of Cape Town)
526	22	24	31	24	33	There have been a number of studies linking climate and health in Africa. For, example, Githeko et al. (KEMRI)-malaria, Madeline Thomsen et al., (IRI)-malaria,meningitis, etc. So, it may not be accurate to say limited studies linking CC and health have been conducted. (UNITED STATES OF AMERICA)
527	22	24	38	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
528	22	24	38	24	46	I am not sure what to take from this paragraph. It mainly seems to say that cholera outbreaks tend to occur in the wet season. The de Magny paper seems to be the only one implying more. (Stone, Dáithí, University of Cape Town)
529	22	24	48	24	50	Please consider citing Jankowska, Marta M., et al. "Climate change and human health: Spatial modeling of water availability, malnutrition, and livelihoods in Mali, Africa." Applied Geography 33 (2012): 4-15. AND Grace, Kathryn, et al. "Child malnutrition and climate in Sub-Saharan Africa: An analysis of recent trends in Kenya." Applied Geography 35.1 (2012): 405-413. (UNITED STATES OF AMERICA)
530	22	24	48	24	50	This is a very interesting statement, and it might be helpful to add through what physical change this increase in malnutrition will be derived. (UNITED STATES OF AMERICA)
531	22	24	48	24	50	I think the scenario needs to be specified here. Supposedly some might expect the health, or other, interventions with prevent this from happening. What are the conditions required? (Stone, Dáithí, University of Cape Town)
532	22	24	53	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
533	22	25	3	0	0	This section could be shortened quite a bit I think, without losing relevance to the assessment. It is certainly going into more detail than previous sections. (Stone, Dáithí, University of Cape Town)
534	22	25	3	27	13	I've got teh feeling that diseases outbreaks in relation with seasonal, inter-annual, and intra-seasonal variability should be more documented... (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
535	22	25	5	27	13	An important take away message from the health sector is not just that the area for some diseases may increase, but that diseases may become prelevant in areas that did not previously experience it, and thus the local populations will neither have a built up tolerance nor the ability to cope with it. Thus the total area that a disease affects is not the only metric of importance, but also its potential impact on the people living in those areas. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
536	22	25	8	25	11	New research shows malaria transmission peaks at 25 degrees C, and declines sharply over 28 C. This should be stated, and cited: 1) Lunde, Torleif Markussen, Bayoh, Mohamed Nabie, and Lindtjørn, Bernt: How malaria models relate temperature to malaria transmission., Parasit Vectors 6(1), 20, 2013 2) Mordecai, Erin A, Paaijmans, Krijn P, Johnson, Leah R, Balzer, Christian, Ben-Horin, Tal, de Moor, Emily, McNally, Amy, Pawar, Samraat, Ryan, Sadie J, Smith, Thomas C, Lafferty, Kevin D, and Thrall, Peter: Optimal temperature for malaria transmission is dramatically lower than previously predicted., Ecol Lett, 2013 (Lunde, Torleif Markussen, University of Bergen)
537	22	25	9	25	10	Does the nonlinearity matter here? Anyway quadratic and exponential are nonlinear. (Stone, Dáithí, University of Cape Town)
538	22	25	11	0	0	"Will likely"? When? "likely" italicised? (Stone, Dáithí, University of Cape Town)
539	22	25	11	25	11	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
540	22	25	12	25	13	I do not see how ENSO events are relevant in the context of climate change. If this sentence is to be included it must be backed up by research showing the frequency of ENSO events will change with anthropogenic driven climate changes. (Lunde, Torleif Markussen, University of Bergen)
541	22	25	28	25	29	The reference to Afrane 2012 is important, since most models projecting changes in the intensity of malaria transmission neglects malaria is transmitted by several species. The sentence could be clearer by stating that changing vector composition due to climate change could lead to changes in malaria transmission. These changes are currently poorly understood. (Lunde, Torleif Markussen, University of Bergen)
542	22	25	31	25	33	This must be under some unspecified scenario. (Stone, Dáithí, University of Cape Town)
543	22	25	31	25	37	Statement "reason for different projection across models including using GCMs versus regional climate models..." is not fitting well within the paragraph. (NETHERLANDS)
544	22	25	32	25	32	It is stated that areas above 2,000 meters will be particularly affected. This is inaccurate. Writing "with temperatures which are currently too low to support malaria transmission" would be more physical. Malaria transmission is related to elevation due to decreasing temperatures and specific humidity with elevation. (Lunde, Torleif Markussen, University of Bergen)
545	22	25	33	25	35	These two reasons sound similar. Curiously, no uncertainty in the way the malaria system might actually respond to climatic impulses is listed here, while I would guess that that is much larger than any uncertainty on the climate modelling side. (Stone, Dáithí, University of Cape Town)
546	22	25	34	25	34	'versus' should be in italics. (Burt, Peter, University of Greenwich)
547	22	25	39	26	2	The executive summary states a significant positive relation of leishmaniasis with rainfall in North Africa, but the only mention of this here is in the context of Tunisia specifically. Please ensure support for the characterization in the executive summary. (Mastrandrea, Michael, IPCC WGII TSU)
548	22	25	43	25	44	This seems to say that something that has happened in Algeria is affecting what is happening everywhere else. (Stone, Dáithí, University of Cape Town)
549	22	25	49	25	49	Delete comma after 'Algeria': the disease is endemic in all these areas. (Burt, Peter, University of Greenwich)
550	22	26	8	26	8	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
551	22	26	10	26	10	'enye' required over the 'n' in 'Nina'. (Burt, Peter, University of Greenwich)
552	22	26	15	26	24	Need a proper reference to support the US\$ 2 billion cost of livestock diseases (NETHERLANDS)
553	22	26	15	26	24	There should be at more focus on impacts of CC on pastoralism and pastoralists' livelihoods. (UNITED STATES OF AMERICA)
554	22	26	18	26	18	Mix up of disease and pathgoen. Theileriosis is the illness caused by ticks of the genus Theileria. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
555	22	26	21	26	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
556	22	26	22	26	24	The relevant timeframe and drivers for this observation could be specified. Additionally, what is an economically important tick species? This could be clarified. (Mach, Katharine, IPCC WGII TSU)
557	22	26	24	0	0	What is meant by “economically important tick species”? (Stone, Dáithí, University of Cape Town)
558	22	26	27	26	28	This tie into increase irrigation is an interesting secondary effect, and it could also be called out in the water resource section. Increases in demand for irrigation driven by more erratic rainfall and increasing temperatures may have significant impacts on water availability, especially at certain times of the year. (UNITED STATES OF AMERICA)
559	22	26	41	26	42	Missing article in the reference - Haydent et al. (NETHERLANDS)
560	22	26	42	26	42	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
561	22	26	51	27	3	Be careful making claims about causality. As presented, climate change is the sole factor contributing to changes in spread or behaviour of vectors of emerging viruses (e.g. hantavirus). Surely changes in habitat or increasing human activities in forests, etc. are more important influences on changes in exposure to shrews, bats, moles, etc. Only one reference is listed and there is significant work on emerging zoonoses and factors that influence these. Climate may contribute but should not be made out as a major factor for viruses. See the work of Nathan Wolfe for examples. (UNITED STATES OF AMERICA)
562	22	26	52	26	53	All of these sentences centre around a “could” or a “may”. (Stone, Dáithí, University of Cape Town)
563	22	27	2	27	2	'Glossina' should be in italics (Burt, Peter, University of Greenwich)
564	22	27	5	27	6	Is there really nothing more about heat exposure on a hot continent in which most people work outdoors? This would strike me as the top of the list. (Stone, Dáithí, University of Cape Town)
565	22	27	5	27	13	These do not sound like vector-borne diseases. (Stone, Dáithí, University of Cape Town)
566	22	27	6	27	6	It would be helpful to specify whether these are health effects related to climate change. (Mach, Katharine, IPCC WGII TSU)
567	22	27	10	27	10	Delete comma after 'cover'. (Burt, Peter, University of Greenwich)
568	22	27	16	0	0	Section 22.3.6. In the further development of this section, the chapter team should be sure to carefully coordinate with the assessment and findings of chapter 12, providing cross-references and ensuring harmonized assessment. (Mach, Katharine, IPCC WGII TSU)
569	22	27	16	0	0	It is important that this section cross-references and coordinates with Chapters 12 and 19. Please also ensure clarity about distinctions between climate variability and climate change as well as their interactions in the context of extremes. (Mastrandrea, Michael, IPCC WGII TSU)
570	22	27	16	28	54	As mentioned earlier, I am extremely hesitant about this section. The evidence is really thin - we need to treat it with caution. I am not sure that it merits an entire section at present. (Archer van Garderen, Emma, CSIR)
571	22	27	18	27	18	Climate variability be extended to include change. While that could be implied, people often talk about current variability and future change as being separate, and so the text as phrased (while correct) could be misleading (UNITED STATES OF AMERICA)
572	22	27	18	27	18	This statement should be very carefully coordinated with chapter 12, as well as clarified. Is the chapter team referring to a current observation of the effect of climate variability? Or is it asserting a future outcome? If so, can this future assertion be robustly supported by the literature? A more qualified formulation may be preferable. (Mach, Katharine, IPCC WGII TSU)
573	22	27	27	27	27	significantly' should be removed as no statistical significance is implied and it is not necessary in the statement (Bain, Caroline, Met Office)
574	22	27	27	27	27	The chapter team should clarify and specify what is meant by "ultimate damages." (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
575	22	27	29	0	0	"Could"? (Stone, Dáithí, University of Cape Town)
576	22	27	29	27	29	It would be helpful to further clarify what is meant by "climate volatility" here. (Mach, Katharine, IPCC WGII TSU)
577	22	27	31	27	32	It would be preferable to specify the full range of the simulated effect instead of "up to 5%." Additionally, is this percentage a yearly value or a summed value over the 20 years? (Mach, Katharine, IPCC WGII TSU)
578	22	27	31	27	33	Does this mean that the total over 20 years is 5%, or that it is 5% per year, or another interpretation? Please clarify. (Mastrandrea, Michael, IPCC WGII TSU)
579	22	27	35	0	0	The varied climate change impacts in Nigeria – more heat and less rain in the arid north, increased torrential rains in the south which engenders gully erosion activities, and sea level rise along the southern coastline – would cost between 6 percent and 30 percent of Nigeria's GDP by 2050, worth between \$100 billion and \$460 billion (Aaron, 2011) [Aaron Sayne, Climate change Adaptation and Conflict in Nigeria. Special Report 274 of The United States Institute of Peace, 2011] (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
580	22	27	44	0	0	This subsection could be shortened, given the lack of much evidence one way or the other. (Stone, Dáithí, University of Cape Town)
581	22	27	44	0	0	Section 22.3.6.2. This subsection should be very carefully coordinated with the assessment and findings of chapter 12, with cross-references used as appropriate. (Mach, Katharine, IPCC WGII TSU)
582	22	27	46	0	0	The spread of small arms has been a major contributing factor to increased insecurity, not only warfare but also criminal activities. (Castro, A. Peter, Maxwell School, Syracuse University)
583	22	27	46	28	10	The possible conflicts associated with climate change go well beyond just violent civil wars, and many propose that most climate related conflicts (at least where climate plays a role) might be more localized conflicts. This section should be expanded to include some of the new literature on other types of conflict and their possible relation to a changing climate (UNITED STATES OF AMERICA)
584	22	27	51	27	51	Is "diametrically" a stronger term then needed? (Mach, Katharine, IPCC WGII TSU)
585	22	27	52	28	1	While the chapter is largely informative and clear, this reference to Burke et al 2009b is especially troubling, especially as specific numbers of battle deaths etc have been included. The problem is twofold: the statistical analysis for this article has been rounded refuted and overturned (by three separate authors in the same journal as the original article appeared); the analysis was largely based on samples that maximized the outcome and violated several standard statistical rules; the implications and original premise of the work is reductive and represents some of the worst examples of modern 'environmental determinism' and 'Africanism' that runs throughout this literature. There would be serious consequences if a respected body such as the IPCC were to give such poor literatures a respectable position within the debate, and those consequences are very serious. As the contributing author for this section, I highly disagree with the tone of the paragraph, as it does not problematize the literature as has been done in multiple quantitative and qualitative works on the subject. (RALEIGH, CLIONADH, TRINITY COLLEGE DUBLIN)
586	22	27	54	27	1	Please clarify the assumptions underlying this projection, and its citation. (Mastrandrea, Michael, IPCC WGII TSU)
587	22	27	54	27	54	include a citation along with the statement 'warmer years leading to significant increases in the likelihood of war' or tone it down/ remove it. (Bain, Caroline, Met Office)
588	22	27	54	27	54	Please reference the source of the statement re 54% increase in armed violence etc. (UNITED STATES OF AMERICA)
589	22	27	54	27	54	For this projection, it would be helpful to specify the relevant scenario of climate change, assumptions, and drivers used in the analysis. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
590	22	27	54	28	3	It is difficult to believe that by 2030 conflict will have increased by 54% !! Several studies have found that cooperation tend to emerge in such conflicting situation (See Theisen, 2012. Peace Research 49[1]; Koubi, et al. 2012. Peace Research 49[1]; Yoffe et al., 2003 JAWRA 39[5]; Wolf, 1998. Water Policy 1[2]). Clear reference could add potency to this projection. In addition the reasoning behind the level of likelihood is not accessible to a non-expert reviewer. (NETHERLANDS)
591	22	28	1	28	3	Explain how high productivity leads to conflict. This statement isn't clear. (UNITED STATES OF AMERICA)
592	22	28	5	0	6	As the author of the piece that supposedly argues that, I find this sentence deeply troubling. I most certainly do not. My piece in 2010 argued that population growth and resource scarcities were products of political marginalization, and that those most severely affected where the poorest, and hence the least likely to actually rebel. Several articles since (both mine and others) have argued on the short term strategic impact of environmental change in determining the timing of events, suggesting that the wet season (and plenty) have a stronger relationship to conflict patterns than the dry. This section overall is not a good representation of the conflict debate. (RALEIGH, CLIONADH, TRINITY COLLEGE DUBLIN)
593	22	28	8	28	8	How do armed conflicts exacerbate drought? Should this be rephrased to 'drought impacts'? (Bain, Caroline, Met Office)
594	22	28	9	28	9	This suggests there has been an increase in charcoal exports since the war - is this correct? (Bain, Caroline, Met Office)
595	22	28	10	28	10	How can deforestation lead to drought in a dryland area such as Somalia? I think most climatologists would argue that rainfall in Somalia comes from the sea. The reference here is to Kolmannskog (2010). Kolmannskog is a lawyer. (Benjaminsen, Tor A., Norwegian University of Life Sciences)
596	22	28	15	28	15	Delete comma after 'economic'. (Burt, Peter, University of Greenwich)
597	22	28	15	28	17	A study of migration in Ghana (from the poorer savannah zone in the North to the wealthier forest and coastal zone in the South) unravels the interplay between environmental and economic and political causes of migration. Reference: Van der Geest (2011). North-South migration in Ghana: What role for the environment? International Migration, Vol 49 (S1): 69-94. (van der Geest, Kees, United Nations University)
598	22	28	15	28	51	Most people who migrate due to an extreme event (flooding, drought) soon return, and so are only temporary migrants, while there is also a more permanent shift of folks from rural areas to urban areas. This difference is captured somewhat in this section, but that difference could be made more clearly, and the consequences of the different types of migration elucidated. (UNITED STATES OF AMERICA)
599	22	28	15	30	28	An increase in net migration of 0.6 per 1000 arising due to environment disaster is difficult to verify. It is difficult to isolate the combined impacts of other variables on migration. Naude, 2010, cited in the chapter, also mention the shortcoming on the data on net migration used - lack of gross migration data, the unreliability of country level data and the difficulty of measuring migration. Since human migration in Africa depends on complex interaction of social, political, demographic, economic and environmental factors, it is unrealistic to extrapolate impacts in isolated cases of Somalia, Ghana and Mozambique to other countries. The climate change components and its impact on human migration and urbanization should be carefully characterized (NETHERLANDS)
600	22	28	16	28	16	Insert space before '('. (Burt, Peter, University of Greenwich)
601	22	28	20	28	22	We only really need the African number. (Stone, Dáithí, University of Cape Town)
602	22	28	23	28	23	displaced due to other climate related drivers...' the drivers you mentioned are also due to natural variability so cannot be solely related to climate change. (Bain, Caroline, Met Office)
603	22	28	23	28	23	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
604	22	28	23	28	24	"Likely"? (Stone, Dáithí, University of Cape Town)

#	Ch	From Page	From Line	To Page	To Line	Comment
605	22	28	23	28	24	Here, the chapter team is potentially asserting attribution to climate change for these impacts--wording should be very carefully considered to best reflect available understanding. (Mach, Katharine, IPCC WGII TSU)
606	22	28	25	28	25	'per' should be in italics (Burt, Peter, University of Greenwich)
607	22	28	26	28	26	'per' should be in italics (Burt, Peter, University of Greenwich)
608	22	28	31	28	31	By "rapid-onset climate events," does the chapter team mean extreme weather events? If so, this could be clarified. (Mach, Katharine, IPCC WGII TSU)
609	22	28	36	28	51	These two paragraphs seem to be repeating the message of the previous paragraph. (Stone, Dáithí, University of Cape Town)
610	22	28	46	28	46	It would be beneficial to specify further what is meant by "major migration consequences" here--most basically, consequences of what. (Mach, Katharine, IPCC WGII TSU)
611	22	28	46	28	51	This paragraph is especially important, as it gets at some of the nuance here. The problem with linking climate to social impacts is that the context in which the physical impact occurs is so important to the social outcomes and impacts. This could be made more clear in all sections. (UNITED STATES OF AMERICA)
612	22	28	48	28	48	It would be helpful to clarify what is meant by "climate disaster"--"type of extreme weather event"? (Mach, Katharine, IPCC WGII TSU)
613	22	29	1	0	0	Section 22.3.7. In the further development of this section, the chapter team should further coordinate with the assessment and findings of chapter 8, providing cross-references where relevant. (Mach, Katharine, IPCC WGII TSU)
614	22	29	1	29	1	There is a recent study done by ENDA Energie and IIED on vulnerability of the city of Pikine to climate change. (Diouf, Aliou, ENDA Energie-Environnement-Développement)
615	22	29	1	30	18	With the exception of the final paragraph, each paragraph in this subsection seems to be starting anew. Some of the material could be merged and condensed in order to avoid redundancy. (Stone, Dáithí, University of Cape Town)
616	22	29	1	30	28	The increases in urbanization in Africa has two broad consequences associated with adaptation to climate change. The first is that the migration is in fact an adaptive measures, so that urbanization may be at least partially driven by climate change. It also has consequences for adapting to climate change as the adaptive options in an urban setting are very different than those in a rural setting. This section hits on both of these, but the distinction between the two could be made more clear. Also, in urban areas, the most vulnerable often live in the most exposed areas, increasing their vulnerability. (UNITED STATES OF AMERICA)
617	22	29	2	30	28	There is limited or no exposition on how unurbanization can exacerbate local/regional climate impacts. (UNITED STATES OF AMERICA)
618	22	29	3	0	0	This seems a pretty bold statement without citation or explanation. (Stone, Dáithí, University of Cape Town)
619	22	29	5	29	5	Use of etc is imprecise and tells the reader nothing. Please give all relevant examples (or use 'for instance'). (Burt, Peter, University of Greenwich)
620	22	29	6	29	6	replace 'will' with 'could' (Bain, Caroline, Met Office)
621	22	29	6	29	9	Can you rephrase this sentence, it's meaning is very unclear (Bain, Caroline, Met Office)
622	22	29	10	29	10	...impacts of climate change as well as sociopolitical factors' (Bain, Caroline, Met Office)
623	22	29	12	0	0	"will treble" to "is projected to treble" (Stone, Dáithí, University of Cape Town)
624	22	29	12	29	15	This seems more of the introductory paragraph than the one preceding it. (Stone, Dáithí, University of Cape Town)
625	22	29	20	29	20	with its associated erratic rainfall and extreme weather events' should be removed as there has been no evidence presented on this that is directed at Africa. The sentence stands without it. (Bain, Caroline, Met Office)
626	22	29	37	29	54	What is relevance of text in lines 37 -42? Move line 50-54 to coastal section. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
627	22	29	45	29	45	Usage of "already" should be reconsidered, as it could imply that such flooding has been attributed to climate change already, which presumably is not the case. (Mach, Katharine, IPCC WGII TSU)
628	22	29	47	29	47	Move comma from after 'Tanzania' to after 'Uganda' (Burt, Peter, University of Greenwich)
629	22	29	48	29	48	Delete first 'in'. (Burt, Peter, University of Greenwich)
630	22	29	50	29	50	Change 'Another' to 'One' (Bain, Caroline, Met Office)
631	22	29	51	29	51	is there any mining in the coastal inundation zones? (Bain, Caroline, Met Office)
632	22	29	51	29	51	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
633	22	30	1	30	7	Perhaps it would be helpful to discuss briefly the long life spans of much urban infrastructure, which makes interventions in the urban area very different than in rural areas where much of the infrastructure has a shorter life span. (UNITED STATES OF AMERICA)
634	22	30	3	30	3	do you mean 'continent's' rather than 'regions's' (Bain, Caroline, Met Office)
635	22	30	9	30	9	In place of a footnote, this reference could be made parenthetically. (Mach, Katharine, IPCC WGII TSU)
636	22	30	11	30	12	In place of a direct quote, it would be preferable to more explicitly assess the information. (Mach, Katharine, IPCC WGII TSU)
637	22	30	13	30	13	Change to 'et al.' and italicise (Burt, Peter, University of Greenwich)
638	22	30	13	30	13	Is chapter 7 the chapter meant, as it does not seem very relevant? (Mach, Katharine, IPCC WGII TSU)
639	22	30	31	0	0	Section 22.4. This section should be substantially shortened in the final draft of the chapter. Its length should be reduced by more than 50%. (Mach, Katharine, IPCC WGII TSU)
640	22	30	31	0	0	This section needs condensation. Please consider opportunities to focus the discussion to clearly present the key messages emerging from the assessment of the literature. Consider further opportunities to present other material more succinctly, for example in additional tables. (Mastrandrea, Michael, IPCC WGII TSU)
641	22	30	31	37	40	The adaptation section seemed very well written, but the point should be made (better) that adaptation strategies must take into account local norms and practices. (UNITED STATES OF AMERICA)
642	22	30	36	30	36	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
643	22	30	39	30	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
644	22	30	40	30	40	I am not happy about citing references as 'forthcoming'. What happens if they are not published (and worse, if flaws in the data/methodology arise during review)? (Burt, Peter, University of Greenwich)
645	22	30	43	35	30	Consider adding examples of interesting and innovative approaches to working on adaptation and trying to do it at/from various levels to enable scale-up, e.g. ACCRA, Africa Climate Change Resilience Alliance, which is a consortium in 4 countries of ODI, World Vision, Save the Children, CARE and Oxfam that has created a research and local adaptive capacity framework, done innovative training using games and had a good influence with governments in Ethiopia, Uganda and elsewhere - http://community.eldis.org/accra/ (UNITED STATES OF AMERICA)
646	22	30	43	35	30	The important role of Africa's New Partnership for Africa's Development's Comprehensive Agriculture Development Programme (CAADP) should be discussed. The role of agricultural development as a (potentially) adaptive interaction should be given more priority. (UNITED STATES OF AMERICA)
647	22	30	45	30	46	Is it really true that Africa's adaptive capacity as a whole is low? Can one have such a continental level generalisation given the diversity of socio-political, economic and environmental differences? Regional generalisation to limited extent may be possible. Africa is highly vulnerable to the impact of climate change but is it also true of adaptive capacitive? (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
648	22	30	45	31	41	Most adaptation policies and/or strategies do not clearly emphasize making CC information more reliable & accessible as a core gap in many African institutions in Africa. (UNITED STATES OF AMERICA)
649	22	30	46	30	46	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
650	22	30	50	30	51	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
651	22	30	53	30	53	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
652	22	30	54	30	54	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
653	22	30	54	30	54	This statement seems to contradict the statement earlier in the Executive Summary that stated that Africa's vulnerability was merely a function of its low adaptive capacity. This sentence seems to indicate it is also a function of its high exposure. Can the authors clarify this or make the results more consistent? (UNITED STATES OF AMERICA)
654	22	31	3	31	4	NAPA stands for National Adaptation Programme of Action; not Plan. In addition, once a country has completed its NAPA, it can begin implementation of programs to address the priorities identified in the NAPA. (UNITED STATES OF AMERICA)
655	22	31	5	0	0	add Botswana to countries that have conducted a technology needs assessment, to down load the document go to: http://unfccc.int/ttclear/sunsetcms/storage/contents/stored-file-20130313110631967/TNA_Report_Final.pdf (Hambira, Wame Lucretia , University of Botswana)
656	22	31	5	31	6	Are these multi-country technology needs assessments part of a comprehensive initiative or all financed by the same climate fund? (UNITED STATES OF AMERICA)
657	22	31	6	31	6	Delete comma after 'Sudan'. (Burt, Peter, University of Greenwich)
658	22	31	8	31	19	We certainly need to provide better and more accurate information, but we also need to be realistic about what we can provide. In certain areas (i.e., the Sahel) and for certain variables (i.e., dry spells) our models may simply not be able to provide the needed data in the near term. This knowledge that our uncertainty is not likely to decrease in the near future has significant consequences for the <u>adaptive measures we propose</u> . (UNITED STATES OF AMERICA)
659	22	31	10	31	10	short and fragmented digitised records' - the digitised part should be emphasised as often there are long records in existence but they only exist on paper - this might be a topic worth highlighting here as well. (Bain, Caroline, Met Office)
660	22	31	11	31	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
661	22	31	11	31	11	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
662	22	31	11	31	11	Date missing from Jaloh reference (Burt, Peter, University of Greenwich)
663	22	31	13	31	14	..exacerbated by under-resourcing of Meteorological Agencies and a lack of in-country expertise on climate science..' (Bain, Caroline, Met Office)
664	22	31	15	31	15	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
665	22	31	16	31	16	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
666	22	31	16	31	16	Date missing from Jaloh reference (Burt, Peter, University of Greenwich)
667	22	31	22	31	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
668	22	31	28	31	29	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
669	22	31	28	31	29	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
670	22	31	29	31	29	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
671	22	31	32	0	0	Please avoid the use of the imprecise term "stimuli" - what are we talking about specifically? (Harnisch, Jochen , KfW)

#	Ch	From Page	From Line	To Page	To Line	Comment
672	22	31	32	31	33	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
673	22	31	33	31	33	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
674	22	31	35	31	36	Is this policy prescriptive? I am not sure, but figure I should flag it. (Stone, Dáithí, University of Cape Town)
675	22	31	40	31	41	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
676	22	31	44	0	0	Section 22.4.3: This section could really benefit from more emphasis on improved climate observing systems and climate trend analyses. (UNITED STATES OF AMERICA)
677	22	31	46	31	49	Section 22.4.3: The focus on resilience is good (Line 46 - 49). Could this be expanded to help structure the entire adaptation section? As written, it seems like policy makers could choose to focus on soft path or hard path (ecosystems services or infrastructure) but really the question should be on how to build resilience. (UNITED STATES OF AMERICA)
678	22	31	47	31	50	It is likely not just an issue of 'inadequate development strategies'. There are rather good development strategies that faces significant implementation challenges due to complex cultural, political and insitutional factors. (UNITED STATES OF AMERICA)
679	22	31	49	31	49	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
680	22	31	49	31	49	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
681	22	31	49	31	50	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
682	22	31	52	31	53	Does climate change have a migrant status? (Stone, Dáithí, University of Cape Town)
683	22	31	54	31	54	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
684	22	32	4	32	5	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
685	22	32	15	0	0	Do you mean 22.4.4? (Stone, Dáithí, University of Cape Town)
686	22	32	28	32	28	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
687	22	32	33	32	33	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
688	22	32	33	32	33	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
689	22	32	33	32	34	The GEF website is reporting that there is only one NAPA currently in the final stages of completion, while the other 48 have been completed. (UNITED STATES OF AMERICA)
690	22	32	37	32	37	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
691	22	32	41	32	43	The phrase "only a small percentage of the NAPA activities have been funded" needs to be clarified. Or at least expanded. The GEF is currently finalizing and disbursing funds for dozens of proposals for NAPA implementation through funding from the LDCF and SCCF. (UNITED STATES OF AMERICA)
692	22	32	42	32	42	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
693	22	32	46	32	46	'medium' confidence' should be in italics. (Burt, Peter, University of Greenwich)
694	22	32	46	32	46	"medium confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
695	22	32	48	32	48	Change 'coordinating' to co-ordinating' (cf page 33, line 41). (Burt, Peter, University of Greenwich)
696	22	32	49	32	49	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
697	22	33	3	33	3	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
698	22	33	12	33	12	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
699	22	33	15	33	15	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
700	22	33	15	33	15	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
701	22	33	16	33	16	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
702	22	33	16	33	17	Reference style needs correcting. (Burt, Peter, University of Greenwich)
703	22	33	19	33	19	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
704	22	33	21	33	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
705	22	33	24	33	24	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
706	22	33	26	33	26	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
707	22	33	27	33	27	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
708	22	33	28	33	28	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
709	22	33	30	33	30	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
710	22	33	35	33	45	The latest initiatives on Climate services by WMO (Global Framework for Climate Services-GFCS) provides a very comprehensive platform for tailoring climate information that can also be very enriching to regional CC adaptation policies/strategies. (UNITED STATES OF AMERICA)
711	22	33	45	33	45	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
712	22	33	47	33	47	The phrase "will need" could be interpreted as a prescriptive formulation, and it would be preferable to rewrite this statement. (Mach, Katharine, IPCC WGII TSU)
713	22	33	47	33	54	See 2013 Chatham House report "Managing Famine Risk: Linking Early Warning to Early Action" for additional suggestions on governance/ institutional changes that are needed. (UNITED STATES OF AMERICA)
714	22	33	49	33	51	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
715	22	33	50	33	50	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
716	22	34	1	34	1	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
717	22	34	1	34	1	full reference: Sietz, D., Boschütz, M. and Klein, R.JT. (2011) Mainstreaming climate adaptation into development assistance: rationale, institutional barriers and opportunities in Mozambique. Environ. Sci. Policy 14(4): 493-502. (sietz, diana, Wageningen University)
718	22	34	2	34	2	Change 'coordinating' to co-ordinating'. (Burt, Peter, University of Greenwich)
719	22	34	3	0	0	The authors refer to some evidence of evolution to a more integrated, multi-level and multi-sector approach to adaptation planning. More empirical evidence from Africa should be included in this section. GIZ has developed and applied a methodology for integrating adaptation into multiple sectors (Fröde et al. 2013). Lessons learned from the application of the approach in Mali include the importance of creating a common understanding of impacts of climate change in a given area, identifying the right stakeholders, finding good entry points in the planning process, and integrating the results into monitoring and evaluation procedures. The following sentences should be inserted: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) has developed and applied a methodology for integrating adaptation into multiple sectors (Fröde et al. 2013). Early evidence from an application of the methodology in Mali highlights the importance of creating a common understanding of impacts of climate change in a given area, identifying the right stakeholders, finding good entry points in the planning process, and integrating the results into monitoring and evaluation procedures (Fröde et al. 2013). Fröde, Alexander, Michael Scholze, and Nadia Manasfi. "Taking a climate perspective on development: GIZ's climate proofing for development approach." Climate and Development ahead-of-print (2013): 1-5. (GERMANY)

#	Ch	From Page	From Line	To Page	To Line	Comment
720	22	34	3	0	0	Sentence for addition: "UNESCO Biosphere Reserve management units can facilitate such coordination of relevant stakeholders on the local level, strengthening their role as model regions for sustainable development with a special regard to climate change adaptation (Dresden Declaration on Biosphere Reserves and Climate Change 2011 URL: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/DRESDEN_DECLARATION_MAB.pdf and Bonnin, Marie 2011: Le rôle potential des Réserves de biosphère dans l'adaptation au changement climatique. Aspects juridiques. GIZ Rabat/Morocco. 27 pages)." (GERMANY)
721	22	34	3	34	3	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
722	22	34	10	34	11	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
723	22	34	10	34	11	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
724	22	34	14	34	14	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
725	22	34	18	34	23	Does this contradict line 9 above? (Stone, Dáithí, University of Cape Town)
726	22	34	23	34	23	Reference style wrong (Burt, Peter, University of Greenwich)
727	22	34	23	34	23	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
728	22	34	28	0	44	Recent research unmentioned: For example, the striga mentioned as impact in page 22: there are community-based adaptations documented for Africa Bonye et al (2012): "Promoting Community-Based Extension Agents as an Alternative Approach to Formal Agricultural Extension Service Delivery in Northern Ghana" and other initiatives in Africa through the various CGIAR centers; Chishakwe et al (2012): "Building climate change adaptation on community experiences: lessons from community-based natural resource management in southern Africa"; Genetically-modified banana efforts in Africa with involvement of local small-scale farmers can be viewed as a form of community-based adaptation for example this ref: Impact of tissue culture banana technology in Kenya: A difference-in-difference estimation approach; Recha et al (2013) "Empowering a local community to address climate risks and food insecurity in Lower Nyando, Kenya" (Mwangi, Margaret, Pennsylvania State University)
729	22	34	28	34	44	The effectiveness of CBA is very much owing to the ability of communities to retain benefits of their efforts, which typically requires both ownership over the process and the resources. Resource tenure and its importance should at least be mentioned in this section, as it is more than CBA, but the empowerment of these communities to both make decisions and reap the rewards of their choices that are important. (UNITED STATES OF AMERICA)
730	22	34	28	34	44	Clarify that community-based means both (1) located at the community level; and (2) community-initiated, or drawing upon community knowledge or resources. The latter implies a greater degree of participation than the former (Castro, A. Peter, Maxwell School, Syracuse University)
731	22	34	29	34	29	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
732	22	34	31	34	31	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
733	22	34	31	34	31	Replace '&' with 'and' for consistency. (Burt, Peter, University of Greenwich)
734	22	34	35	0	0	Sentence part to extend the existing sentence: "... and UNESCO Biosphere Reserves where good practices were developed in Ethiopia, Kenya, South Africa and Senegal, among others (For life, for the future: biosphere reserves and climate change; a collection of good practice case studies 2011 URL: http://www.unesco.de/fileadmin/medien/Dokumente/Wissenschaft/Biosphere_reserves_climate_change_web_9MB.pdf)." (GERMANY)
735	22	34	37	34	37	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)

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736	22	34	38	34	38	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
737	22	34	39	34	39	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
738	22	34	40	34	40	Delete comma after 'Ghana'. (Burt, Peter, University of Greenwich)
739	22	34	44	34	44	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
740	22	34	51	34	51	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
741	22	34	51	34	51	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
742	22	34	54	34	54	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
743	22	35	2	35	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
744	22	35	5	35	5	Comma required after 'al.'. (Burt, Peter, University of Greenwich)
745	22	35	9	35	9	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
746	22	35	14	35	14	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
747	22	35	15	35	15	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
748	22	35	19	35	19	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
749	22	35	21	35	21	Change 'coordinating' to co-ordinating'. (Burt, Peter, University of Greenwich)
750	22	35	25	0	0	Sentences for addition: "UNESCO requests the so far 81 African Biosphere Reserves to provide an evaluation report at least every ten years which requires continuous monitoring of the various facets of the human-nature relationship, including climate change (http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/Periodic_review_form_english_2013.pdf ; http://www.fao.org/gtos/doc/brim1.pdf). Biosphere Reserves represent focus sites for research under UNESCO's Man and the Biosphere (MAB) Programme and can ensure increased institutional sustainability of implemented measures beyond the duration of single projects." (GERMANY)

#	Ch	From Page	From Line	To Page	To Line	Comment
751	22	35	25	0	0	More empirical evidence should be cited when referring to local-level assessments of adaptation action. The authors refer only to one study by Archer et al. (2008) that build on a participatory action research framework. However, the emerging body of research on this topic is much more diverse (e.g. Below et al. 2012, Gbetibou et al. 2010, Hahn et al. 2009). Below et al. (2012) have developed an approach to assess farmers' adaptation performance in rural Tanzania using a multi-method approach that combines qualitative and quantitative empirical techniques. The advantage of this bottom-up approach is that it captures the complexity of local adaptation processes in a single index avoiding the high risk of wrongly specified weights of traditional composite index approaches. The following sentences should be inserted: Other approaches for assessing adaptation action at local and regional levels have been developed by Below et al. (2012), Gbetibou et al. (2010), and Hahn et al. (2009). Below et al. (2012) assess farmers' adaptation performance in rural Tanzania using a multi-method bottom-up approach that combines qualitative and quantitative empirical techniques. The advantage of this approach is that it captures the complexity of local adaptation processes in a single index avoiding the high risk of wrongly specified weights of traditional composite index approaches. Below, T.B., K.D. Mutabazi, D. Kirschke, C. Franke, S. Sieber, R. Siebert and K. Tscherning (2012): Can farmers' adaptation to climate change be explained by socio-economic household-level variables? Global Environmental Change – Human and Policy Dimensions 22, No. 1, pp. 223-235. Gbetibouo, G.A., Ringler, C., Hassan, R., 2010b. Vulnerability of the South African farming sector to climate change and variability: an indicator approach. Natural Resources Forum 34, 175–187. Hahn, M.B., Riederer, A.M., Foster, S.O., 2009. The Livelihood Vulnerability Index: a pragmatic approach to assessing risks from climate variability and change – a case study in Mozambique. Global Environmental Change 19, 74–88. (GERMANY)
752	22	35	25	35	25	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
753	22	35	28	0	0	examples of experiences and lessons learnt with regards to adaptation to climate change and the tourism sector in Botswana could be cited as examples in this section. See the following literature: Saarinen, J., Hambira, W.L, Atlhopheng, J. and H. Manwa (2013). Tourism and Climate Change in Southern Africa: Perceived impacts and adaptation strategies of the tourism industry to changing climate and environment in Botswana. In Reddy, V. and K. Wilkes (Eds) Tourism, Climate Change and Sustainability. Routledge, London ISBN: 978-1-84971-422-8 Saarinen, J., Hambira, W., Atlhopheng, J., and Manwa, H. (2012) Tourism Industry reaction to climate change in Kgalagadi South District, Botswana. Development Southern Africa Vol. 29 No. 2, pp. 273–285 Hambira W. L., Saarinen J., Manwa H. & Atlhopheng J., (in press) Climate change adaptation practices in nature-based tourism in Maun in the Okavango Delta area, Botswana: how prepared are the tourism businesses? Tourism Review International journal. Vol 17, ppXX (Hambira, Wame Lucretia , University of Botswana)
754	22	35	38	35	38	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
755	22	35	42	35	42	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
756	22	35	45	35	45	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
757	22	35	45	35	45	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
758	22	35	50	35	50	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
759	22	35	50	35	50	Whereas short-path CC adaptation policies may be effective short-term measures, they tend to be location/region/community specific and their value-chain and scalability may be limited and thus comprehensive CC policies may not be based on them per se. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
760	22	35	52	36	8	The focus on these low cost or no regrets options is understandable, but one question that has not been addressed is that if there are such great ideas, then why are they not being taken up, why is donor funding needed? Often this is because there are either high upfront costs with a long payback time, or because such options require behavior change that the local populations are not at first willing to undertake. We cannot assume that all folks are rational actors, and while they will always act in what they think is their best interest, that does not mean this will align with what appears to us as their best interest. When designing options, we have to remember that people and their cultures, beliefs and societal norms will impacts the decisions they make. (UNITED STATES OF AMERICA)
761	22	36	1	36	1	Casual usage of "likely" should be avoided, as it is a reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
762	22	36	5	36	5	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
763	22	36	6	36	6	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
764	22	36	19	0	0	Specify what is meant by livelihood diversification. This section also downplays the role of remittances as a means of reducing risk and contributing to recovery (see Little et al. 2006 cited above) (Castro, A. Peter, Maxwell School, Syracuse University)
765	22	36	34	36	47	The problem with EWS though is that it focuses on year-to-year variability, which in Africa means rainfall. Anthropogenic climate change is mainly a temperature phenomenon. (Stone, Dáithí, University of Cape Town)
766	22	36	37	36	37	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
767	22	36	37	36	37	Delete space after second ')'. (Burt, Peter, University of Greenwich)
768	22	36	37	36	37	Delete comma after 'local' (Burt, Peter, University of Greenwich)
769	22	36	46	36	47	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
770	22	36	49	35	52	Kienberger 2012: Integrated spatial assessment methods at the local and district level in Mozambique. The example could be cited here. Kienberger, S., 2012. Spatial modelling of social and economic vulnerability to floods at the district level in Búzi, Mozambique. Natural Hazards 64(3), 2011-2019. http://dx.doi.org/10.1007/s11069-012-0174-9 (Kienberger, Stefan, University of Salzburg)
771	22	36	49	36	54	It should be mentioned that Adaptation strategies should not be based on limited case studies and pilots that may not necessarily encompass the full scope of CC impacts in time, space and across entire populations. (UNITED STATES OF AMERICA)
772	22	36	54	0	0	Does this not just mean that because we do not have a full understanding of risk sometimes we may be in error? (Stone, Dáithí, University of Cape Town)
773	22	37	4	37	5	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
774	22	37	8	37	8	Delete comma after 'Swaziland'. (Burt, Peter, University of Greenwich)
775	22	37	10	37	10	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
776	22	37	18	37	18	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
777	22	37	25	37	25	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
778	22	37	27	37	28	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
779	22	37	28	0	0	A political risk associated with safety net programs, as well as other rural development and relief assistance, is that they can become tools of political patronage; for example see Peter Gill, Famine and Foreigners. (Castro, A. Peter, Maxwell School, Syracuse University)

#	Ch	From Page	From Line	To Page	To Line	Comment
780	22	37	33	37	33	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
781	22	37	52	37	52	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
782	22	38	4	38	4	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
783	22	38	7	38	7	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
784	22	38	11	38	16	Should the need for increased capacity in Nation Meteorological Centres be mentioned here? It seems the logical place to mention it as they are often responsible for issuing warnings. (Bain, Caroline, Met Office)
785	22	38	11	38	16	The resolution of the information is a challenge, as we can often not provide the necessary information as the necessary small spatial scales for many individuals to make decisions. (UNITED STATES OF AMERICA)
786	22	38	13	38	13	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
787	22	38	15	38	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
788	22	38	21	38	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
789	22	38	22	38	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
790	22	38	23	38	23	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
791	22	38	24	38	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
792	22	38	31	0	0	Could it be vulnerable to positive effects? Actually, I am not sure what a positive effect is. According to convention, warming is positive, and it is an effect. (Stone, Dáithí, University of Cape Town)
793	22	38	34	38	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
794	22	38	36	38	36	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
795	22	38	38	38	41	While it may be important to emphasize agriculture-based adaptation strategies, diversification out of agriculture and/or pastoralism should also be promoted as sustainable options. (UNITED STATES OF AMERICA)
796	22	38	39	38	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
797	22	38	42	38	42	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
798	22	38	42	38	42	Remove Scheffran et al. 2011 because it is identical to Scheffran et al. 2012 which is in the reference list. (Scheffran, Jürgen, University of Hamburg)
799	22	38	44	38	44	Citations required. (Burt, Peter, University of Greenwich)
800	22	38	50	38	50	medium evidence, medium agreement' should be in italics (Burt, Peter, University of Greenwich)
801	22	38	50	38	50	"medium evidence" and "medium agreement" as calibrated summary terms should be italicized. (Mach, Katharine, IPCC WGII TSU)
802	22	38	53	38	53	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
803	22	39	1	39	1	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
804	22	39	7	39	8	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
805	22	39	8	39	8	I would put the undated reference first in the list. (Burt, Peter, University of Greenwich)
806	22	39	10	39	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
807	22	39	11	39	11	delete 'l' after '2010' (Burt, Peter, University of Greenwich)
808	22	39	11	39	11	I am not happy about citing references as 'forthcoming'. What happens if they are not published (and worse, if flaws in the data/methodology arise during review)? (Burt, Peter, University of Greenwich)
809	22	39	24	39	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
810	22	39	28	39	28	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
811	22	39	30	39	36	The points raised in this paragraph are all quite relevant. However it might be useful to note (somewhere in this section) the contribution that ICTs including mobile phones, radio, and the internet can play in facilitating these processes and helping to overcome some of the challenges. Some of these tools are mentioned in the section below but not in the context of participatory learning processes (see Harvey B, Ensor J, Carlile L, Garside B, Patterson Z, Naess LO. 2012. Climate change communication and social learning—Review and strategy development for CCAFS. CCAFS Working Paper No. 22. CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS), Copenhagen, Denmark. Available online at www.ccafs.cgiar.org) (Harvey, Blane, IDRC)
812	22	39	33	39	33	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
813	22	39	40	39	40	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
814	22	39	43	39	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
815	22	39	47	39	47	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
816	22	39	50	41	22	There is a great deal of repetition in this section - it needs a careful edit, since some elements repeat what is in the previous section. (Archer van Garderen, Emma, CSIR)
817	22	40	7	40	9	It is not clear why farmers are singled out here. Why not cities, or livestock keepers. (NETHERLANDS)
818	22	40	8	0	0	the new Southern African, Science Service Centre for Climate Change and Adaptive Land Use (SASSCAL) program could come a long way in addressing climate information accuracy. See www.sasscal.org (Hambira, Wame Lucretia , University of Botswana)
819	22	40	9	40	9	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
820	22	40	10	40	10	Insert space after 'decision'. (Burt, Peter, University of Greenwich)
821	22	40	13	40	13	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
822	22	40	14	40	14	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
823	22	40	16	40	16	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
824	22	40	18	40	32	The authors might emphasize that we need more research on local knowledge, and improving the evidence base for traditional indicators, such as the start of the raining season. This knowledge is key to behavior change, but we need to better understand its scientific basis, and how climate change might affect its effectiveness in the future. (UNITED STATES OF AMERICA)
825	22	40	18	40	32	perhaps clarify that indigenous or local knowledge are not static, but continuously draw on new sources of information, as well as experiences with new conditions and technologies. Thus it is as much a cultural hybrid as it is traditional in nature. (Castro, A. Peter, Maxwell School, Syracuse University)
826	22	40	21	40	21	"high agreement" and "robust evidence" as calibrated summary terms should be italicized. (Mach, Katharine, IPCC WGII TSU)
827	22	40	24	40	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
828	22	40	30	40	30	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
829	22	40	30	40	34	This issue of reconciling, or understanding the differences, between farmer's perceptions and meteorological data is important and interesting - see Steve Jennings and John Magrath "what happened to the seasons?" chapter 2 in the book "Seasonality, Rural Livelihoods and Development, edited by Stephen Devereux, Rachel Sabates-Wheeler + Richard Longhurst, earthscan/Routledge, 2012, ISBN: 978-0-203-13982-0 (ebk). (UNITED STATES OF AMERICA)
830	22	40	35	40	35	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
831	22	40	36	40	36	Can you explain what a 'rainmaker' is - I assume it is a tribal elder with knowledge of rain trends who relies on natural indicators to predict the rainy season - but can this be clarified? (Bain, Caroline, Met Office)
832	22	40	38	40	39	What is the difference between a scientific record and a local observation? (Stone, Dáithí, University of Cape Town)
833	22	40	39	40	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
834	22	40	40	40	40	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
835	22	40	40	40	40	Where are these other studies undertaken? (Burt, Peter, University of Greenwich)
836	22	40	43	40	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
837	22	41	2	41	2	Use of hyphens is misleading, I suggest replacing them with commas. (Burt, Peter, University of Greenwich)
838	22	41	2	41	7	This seems like a great place to bring in gender more, and how climate change is likely to have very different impacts on different groups, two of which are men and women. For example, men and women often grow different crops, have different household duties, and respond differently (i.e., women rarely migrate in search of work). (UNITED STATES OF AMERICA)
839	22	41	6	41	6	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
840	22	41	7	0	0	the Southern African Regional Network of Universities (SARUA) is also instrumental in this regard. It has initiated a programme that aims to build capacity for climate compatible development (CCD) within the Southern African region (Hambira, Wame Lucretia , University of Botswana)
841	22	41	9	41	16	Similar to above, traditional knowledge is very important, but we still need to develop an evidence base for its effectiveness (UNITED STATES OF AMERICA)
842	22	41	11	41	11	Tidy up referenc style and italicise 'et al.'. (Burt, Peter, University of Greenwich)
843	22	41	11	41	16	I like this text, but does it belong here? It seems more appropriate to integrate into the beginning of 22.4.6, which discusses the same topic but more broadly. (Stone, Dáithí, University of Cape Town)
844	22	41	14	41	16	Section 22.4.5.9 is not there in the document, is it 22.4.6?. But also why women and not children or some other vulnerable group. (NETHERLANDS)
845	22	41	16	41	16	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
846	22	41	16	41	16	Capital 'S' required for 'section' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
847	22	41	21	41	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
848	22	41	21	41	22	2010' references should be in alphabetical order. (Burt, Peter, University of Greenwich)
849	22	41	32	41	32	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
850	22	41	33	41	33	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
851	22	41	41	41	41	Quantify 'a number of countries' and give examples. (Burt, Peter, University of Greenwich)
852	22	41	45	41	46	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
853	22	42	1	42	1	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
854	22	42	2	42	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
855	22	42	6	42	6	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
856	22	42	9	42	9	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
857	22	42	11	42	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
858	22	42	14	42	50	Section 22.4.5.6: This discussion on ecosystem-based adaption needs elaboration. What role are they playing specifically? In development in general (which aids livelihood resilience) or in disaster risk reduction? Or as early warnings of climate change? There is a great deal of literature on this and the section could touch on each of these aspects, highlighting success stories. Also the timescale of responses needs to be mentioned. Ecosystem based adaption may take many years to implement, while a flood wall may be built sooner. (UNITED STATES OF AMERICA)
859	22	42	17	0	0	What does “effective” mean here (effective in meeting local needs or in addressing climate change, or both)? (Castro, A. Peter, Maxwell School, Syracuse University)
860	22	42	17	42	17	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
861	22	42	19	42	19	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
862	22	42	20	42	20	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
863	22	42	29	42	29	"delete a double word 'for' (UNITED REPUBLIC OF TANZANIA)
864	22	42	30	42	30	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
865	22	42	34	42	34	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
866	22	42	41	42	41	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
867	22	42	43	42	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
868	22	42	45	42	45	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
869	22	42	50	42	50	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
870	22	43	6	43	6	Delete comma after 'sustainable'. (Burt, Peter, University of Greenwich)
871	22	43	12	43	12	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
872	22	43	14	43	14	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
873	22	43	15	43	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
874	22	43	17	43	17	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
875	22	43	18	43	18	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
876	22	43	21	43	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
877	22	43	21	43	24	This section seems very important and correctly emphasizes the importance of resource tenure. Resource ownership should also be discussed outside of this case example. (UNITED STATES OF AMERICA)
878	22	43	30	43	30	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
879	22	43	31	43	31	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
880	22	43	32	43	32	Delete comma after 'developmental'. (Burt, Peter, University of Greenwich)
881	22	43	35	43	0	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
882	22	43	37	43	47	Please consider mentioning that a challenge we face is that we are not very good at adequate valuation of environmental services, and thus have a difficult time accurately capturing the value of future benefits from adapting to climate change through soft measures if we cannot also value the other benefits that will be added to the system. This is easier at a community level where people better understand the connections, but more difficult at the national level (UNITED STATES OF AMERICA)
883	22	43	41	43	47	Box CC-EA should be cross referenced here. (Estrada, Yuka, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
884	22	43	47	43	47	Citations required. (Burt, Peter, University of Greenwich)
885	22	43	47	43	47	There is a note at the end of the sentence to add citations but none have been added - should add some! (Bain, Caroline, Met Office)
886	22	43	51	43	51	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
887	22	44	3	0	0	Is the “green” label viewed negatively by those living on the land, the national planners, international funders, or others? (Stone, Dáithí, University of Cape Town)
888	22	44	6	44	6	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
889	22	44	8	44	8	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
890	22	44	13	0	0	Juma's book cited above might be worthwhile incorporating here as it deals extensively with issues of technological change in smallholder agriculture. (Castro, A. Peter, Maxwell School, Syracuse University)
891	22	44	18	44	24	The examples do not necessarily support the assertion in the first sentence that this is a response to climate stimuli. They could for instance be planting different varieties simply because they can now obtain them. (Stone, Dáithí, University of Cape Town)
892	22	44	20	44	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
893	22	44	20	44	21	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
894	22	44	22	44	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
895	22	44	23	44	23	Delete full stop after 'et'. (Burt, Peter, University of Greenwich)
896	22	44	23	44	23	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
897	22	44	26	44	31	Given increasing evidence of the potential benefits of conservation agriculture especially in sub Saharan Africa, we suggest authors do some more on the subject. For example, conservation agriculture systems have potential to lower the costs of tillage and weed control with subsequent increase in net returns. Where herbicides have been used in Malawi costs were lower in conservation agriculture systems than normal farmer production practices by between 20% (Ngwira, et al. 2012, Field Crops Research) and 63% (Ito, et al., 2007, Crop Protection). Subsequently, because of increased yields, 60% increase in net returns and 100% returns to labour have been realized. Other examples of literature to refer to include Thierfelder and Wall, 2012, Soi Use and Management, Thierfelder et al., 2013, Field Crops Research; Thierfelder et al., 2013 & 2013; International Journal of Agricultural Sustainability). (NETHERLANDS)
898	22	44	26	44	31	These excellent observations should be listed with 'high confidence' and stressed in the executive summary. (UNITED STATES OF AMERICA)
899	22	44	27	44	28	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
900	22	44	27	44	28	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
901	22	44	34	44	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
902	22	44	37	44	38	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
903	22	44	37	44	38	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
904	22	44	40	44	41	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
905	22	44	43	44	43	Insert space after 'Weiss'. (Burt, Peter, University of Greenwich)
906	22	44	43	44	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
907	22	44	44	44	45	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
908	22	44	45	44	45	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
909	22	44	46	44	46	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
910	22	45	1	45	10	It could be mentioned here that it is often cheaper and easier to integrate climate change considerations into infrastructure initially than to try to retrofit infrastructure later, which is the big reason we worry about infrastructure with long life spans (UNITED STATES OF AMERICA)
911	22	45	2	45	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
912	22	45	7	45	7	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
913	22	45	12	45	13	If the second half of this sentence is not repeating the first half, then to what is the "10- to 27-fold" referring? (Stone, Dáithí, University of Cape Town)
914	22	45	14	45	15	But to complete the example, how does that compare against the costs of not adapting? (Stone, Dáithí, University of Cape Town)
915	22	45	19	45	19	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
916	22	45	20	0	0	'Toteng (2011)' appears twice (Hambira, Wame Lucretia , University of Botswana)
917	22	45	22	45	23	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
918	22	45	22	45	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
919	22	45	26	45	26	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
920	22	45	27	45	28	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
921	22	45	31	46	4	Good to add a section on 'maladaptation'. In this section, the term 'erosive coping' is also very relevant. Erosive coping refers to measures that people adopt when they are faced with a climate stressor (e.g. drought) which helps to survive in the short-term (e.g. sell livestock to buy food), but which undermines longer-term livelihood security (e.g. no milk for household consumption, no bullocks for ploughing, etc.). Reference for the concept of 'erosive coping': Van der Geest, K. & T. Dietz (2004). A literature survey about risk and vulnerability in drylands, with a focus on the Sahel. In: Dietz, T., R. Rueben & J. Verhagen (eds). The Impact of Climate Change on Drylands. Kluwer, Dordrecht. pp.117-146 (file name: vdgeest_dietz_2004.pdf). A recent empirical example: Opondo, D. (under review). Erosive coping after the 2011 floods in Kenya. Int. J Global Warming. (van der Geest, Kees, United Nations University)
922	22	45	33	46	4	This is very relevant to the evidence base of the measures proposed. We really need to focus on building an evidence base concerning adaptive options to ensure the options are appropriate for both current and future climates (UNITED STATES OF AMERICA)
923	22	45	35	45	35	The glossary entry for "maladaptation" could be cross-referenced here. (Mach, Katharine, IPCC WGII TSU)
924	22	45	38	45	38	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
925	22	45	43	45	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
926	22	45	49	45	49	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
927	22	46	1	46	4	Hydro-dependency is not necessarily a problem of Africa. The continent needs more reservoirs to be able to produce sufficient energy, and also boost up food crops production. Adaptation to climate change in some parts of Africa may mean increase rainwater storage to buffer against dry spells. The question then is at what scale should this storage facilities be constructed - should we go for large or small distributed ones? A major problem to Africa now is the issue of land grabbing. In addition more citations are required in this section to support the authors generalisation. (NETHERLANDS)
928	22	46	3	46	3	Citations required. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
929	22	46	3	46	3	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
930	22	46	7	0	0	Section 22.4.6. In the final draft of the chapter, this section should be shortened by more than 50%. (Mach, Katharine, IPCC WGII TSU)
931	22	46	7	47	49	Very relevant section (barriers and limits to adaptation). The conceptual difference between barriers and limits could receive more attention. Perhaps check Chapter 16 or a recent Nature Climate Change article by some of that chapters' authors: Dow et al (2013). Limits to adaptation. Nature Climate Change, Vol. 3: 305-307. For some African case studies (Kenya and The Gambia) on residual impacts of climate change, see Warner, K., K. van der Geest, S. Kreft, S. Huq, K. Kusters & A. de Sherbinin (2012). Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation. Loss and Damage in Vulnerable Countries Initiative. Policy Report. Report No. 9. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS). The African case studies discussed in this report and a similar case study for Burkina Faso will be part of a special issue on Loss and Damage of the International Journal of Global Warming. References: Yaffa, S. (under review). Coping measures not enough to avoid loss and damage from drought in the North Bank Region of The Gambia. Int. J Global Warming (file name: IJGW_LD_Gambia.pdf); Opondo, D. (under review). Erosive coping after the 2011 floods in Kenya (file name: IJGW_LD_Kenya.pdf). Int. J Global Warming; Traore, S., T. Owiyo & Y. Sokona (under review). Dirty drought causing loss and damage in Northern Burkina Faso (file name: IJGW_LD_Burkina.pdf). Int. J Global Warming. And a synthesising paper for these and other case studies: Warner, K. & K. van der Geest (under review). Loss and damage from climate change: Local-level evidence from nine vulnerable countries. Int. J Global Warming (file name: IJGW_LD_synthesis.pdf). (van der Geest, Kees, United Nations University)
932	22	46	9	47	49	It is wonderful that this section was put in, since it is the key link between the physical changes that occur and the actual choices people make. We often assume that people are 100% rational and will do the thing that maximizes the benefits to them, but forget that there are a larger number of other variables that need to be included, include cultural barriers, age, gender, education level, and if these are not accounted for the adaptive actions may not be appropriate or sustainable. Please consider flushing this section out a bit more, perhaps with some examples, and also highlighting the key findings more in the Executive Summary (UNITED STATES OF AMERICA)
933	22	46	9	47	49	This section needs rethinking and reorganization. In some ways, it seems to include everything but the kitchen sink. Yet, in re-reading it, the focus is clearly on troubles largely generated by, or within Africa itself. While this is appropriate, it is also incomplete. Africa has been bedeviled by bad advice and poorly conceived assistance from donor and technical assistance agencies (recent critiques by Abhijit Banerjee and Esther Duflo's Poor Economics and D. Moyo's Dead Aid, as well as earlier ones by G. Hancock's The Lords of Poverty emphasize this point). As Robert Chambers and others have pointed out, normal development professionalism has often served as an obstacle as well (Castro, A. Peter, Maxwell School, Syracuse University)
934	22	46	10	46	10	Would "constrain" be a term preferable to "block"? (Mach, Katharine, IPCC WGII TSU)
935	22	46	11	46	11	'high confidence' should be in italics. (Burt, Peter, University of Greenwich)
936	22	46	11	46	11	"high confidence" as a calibrated term should be italicized. (Mach, Katharine, IPCC WGII TSU)
937	22	46	15	46	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
938	22	46	19	46	19	Insert space after 'Ludi' (Burt, Peter, University of Greenwich)
939	22	46	19	46	19	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
940	22	46	21	46	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
941	22	46	21	46	22	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
942	22	46	24	46	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
943	22	46	25	46	25	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
944	22	46	25	46	26	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
945	22	46	29	46	29	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
946	22	46	34	46	38	"May be the word 'lack' is very strong; could we use 'limited or inadequate!?' (UNITED REPUBLIC OF TANZANIA)
947	22	46	35	46	35	Delete comma after 'resources'. (Burt, Peter, University of Greenwich)
948	22	46	36	46	38	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
949	22	46	36	46	38	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
950	22	46	40	0	0	The dynamical downscaling with RCMs have an ability to reproduce orographic precipitation over complex mountainous regions in Japan. The following article supports this result. Ishizaki, Y., T. Nakaegawa and I. Takayabu 2012: Validation of precipitation over Japan during 1985-2004 simulated by three regional climate models and two multi-model ensemble means. Climate Dynamics, doi:10.1007/s00382-012-1304-5 (Nakaegawa, Toshiyuki, Meteorological Research Institute)
951	22	46	40	46	40	replace 'is' with 'are' (Bain, Caroline, Met Office)
952	22	46	40	46	41	The sentence "Only a portion of small-scale farmers across Africa is able to adapt to perceived climatic changes" is not very informative. "Only a portion" is not very precise. What is "PERCEIVED climatic changes"? I would suggest deleting the sentence. (UNITED STATES OF AMERICA)
953	22	46	40	46	50	This is a very useful list of the challenges to small holders. It is accurate, and very much agrees with an Oxfam Research Report "Overcoming the Barriers: how to ensure food production under climate change in Southern Africa", October 2011, which has a similar list of areas that farmers interviewed said they needed support on - pages 48-52 of our report) at policy-practice.oxfam.org.uk/.../overcoming-the-barriers-how-to-ensure-future-food-production-under-climate-change-188929 (UNITED STATES OF AMERICA)
954	22	46	41	46	41	"high agreement" and "robust evidence" as calibrated summary terms should be italicized. (Mach, Katharine, IPCC WGII TSU)
955	22	46	42	46	42	Delete comma after 'Zambia'. (Burt, Peter, University of Greenwich)
956	22	46	47	46	50	"May be the word 'lack' is very strong; could we use 'limited or inadequate!?' (UNITED REPUBLIC OF TANZANIA)
957	22	46	49	46	50	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
958	22	46	52	46	53	This sentence is key, and it should be highlighted promptly in the Executive Summary instead of just being buried back here where few people will read it. (UNITED STATES OF AMERICA)
959	22	46	53	46	53	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
960	22	47	2	47	2	'et al' should be in italics, with a full stop after the 'l' and a comma after the full stop. (Burt, Peter, University of Greenwich)
961	22	47	2	47	2	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
962	22	47	9	47	9	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
963	22	47	9	47	14	The case could be made that "Farmers with access to CLIMATE INFORMATION and CLIMATE VARIABILITY (instead of weather as indicated in the sentence) are more likely to be aware of changes and to make adjustments accordingly". In Dinku's paper, climate information (past 30 years) is provided to farmers. In Ethiopia farmers are able to respond to climate variability (drought period) by building dams but they can not make any decision based on future climate change projection. (UNITED STATES OF AMERICA)
964	22	47	11	47	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
965	22	47	11	47	14	The Dinku et al. (2011) reference is extremely useful but I think it's a shame that you haven't mentioned their main conclusion that 'Gaps associated with [climate] service provision in Africa are mainly a result of limited capacities of the NMHSs. Only a minor investment is made in the NMHSs in Africa.' (Bain, Caroline, Met Office)
966	22	47	16	47	16	Delete comma after 'institutional'. (Burt, Peter, University of Greenwich)
967	22	47	19	47	21	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
968	22	47	19	47	21	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
969	22	47	24	47	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
970	22	47	28	47	29	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
971	22	47	28	47	29	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
972	22	47	29	47	37	A recent study in Burkina Faso shows how constraints to mobility (transhumance) reduces people's capacity to cope with droughts. Reference: Traore, S., T. Owiyo & Y. Sokona (under review). Dirty drought causing loss and damage in Northern Burkina Faso. Int. J Global Warming. The manuscript for this forthcoming article has been submitted to TSU according to the review instructions. Document name: IJGW_LD_Burkina.pdf (van der Geest, Kees, United Nations University)
973	22	47	33	47	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
974	22	47	33	47	34	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
975	22	47	40	47	40	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
976	22	47	45	47	45	"high agreement" and "robust evidence" as calibrated summary terms should be italicized. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
977	22	48	1	0	0	case study of the Okavango delta vulnerability study could also be captured in this section. See Hambira, Wame L. (2011). Screening for Climate change vulnerability in Botswana's tourism sector in the bid to explore suitable adaptation measures and policy implications: A case study of the Okavango Delta. International Journal of Tourism Policy. Vol. 4, No. 1, pp. 51-65. (Hambira, Wame Lucretia , University of Botswana)
978	22	48	1	0	0	Section 22.5. As much as possible, this section should be shortened in the final draft of the chapter. (Mach, Katharine, IPCC WGII TSU)
979	22	48	6	48	6	I propose the following changes 'critical stage at Kilimanjaro' to 'critical stage in Kilimanjaro'" (UNITED REPUBLIC OF TANZANIA)
980	22	48	6	48	6	It would be preferable to indicate more specifically what is meant by "critical stage." (Mach, Katharine, IPCC WGII TSU)
981	22	48	12	48	13	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
982	22	48	13	48	13	It would be preferable to indicate more specifically what is meant by "dangerous" here. (Mach, Katharine, IPCC WGII TSU)
983	22	48	17	48	17	The timeframe for the decrease in precipitation should be specified within the 1st sentence of this paragraph. (Mach, Katharine, IPCC WGII TSU)
984	22	48	19	48	25	This is good introductory material. I suggest moving it up to the start of the paragraph (line 16). (Burt, Peter, University of Greenwich)
985	22	48	25	48	26	It may be preferable to use a more conditional framing to describe the disappearance of glaciers--"if all of its glaciers disappear"? (Mach, Katharine, IPCC WGII TSU)
986	22	48	31	48	31	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
987	22	48	43	48	43	What is the evidence for claiming that elephants migrate into the forest due to warming? This sounds rather speculative. (Benjaminsen, Tor A., Norwegian University of Life Sciences)
988	22	48	43	48	43	Insert space before first '('. (Burt, Peter, University of Greenwich)
989	22	48	43	48	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
990	22	48	43	48	43	Delete second '('. (Burt, Peter, University of Greenwich)
991	22	48	44	48	45	How confident are we that warming has been a main cause? (Stone, Dáithí, University of Cape Town)
992	22	48	46	48	46	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
993	22	48	46	48	46	Delete '('. (Burt, Peter, University of Greenwich)
994	22	48	50	48	50	'per' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
995	22	48	52	48	54	Figures quoted are different from the official figures available from Tanzania Electricity Supply Company (TANESCO). Hale 21MW not 17MW, Pangani Falls 68MW not 66MW, also the total electricity production from Pangani is estimated at 17% (not 20%) of the electricity. This is likely to go down because of increase use of natural gas, geothermal etc in Tanzania. Nevertheless, nearly all of the hydropower stations operate below capacity mainly because of low water levels in Nyumba ya Mungu reservoir, which is attributed to upstream water use, see Komakech et al., 2011, Agricultural Water Management journal 98 (11) 1740– 1751. (NETHERLANDS)
996	22	49	1	49	1	Reference required. (Burt, Peter, University of Greenwich)
997	22	49	1	49	9	The majority of the water users in the Pangani basins are the smallholder farmers, who have constructed over 3000 irrigation canals. They are the ones likely to experience significant impact of climate change in the basin see Komakech et al., 2011, Agricultural Water Management journal 98 (11) 1740– 1751.. (NETHERLANDS)
998	22	49	1	49	13	It might be helpful if the authors added a summary paragraph highlighting the complex interactions between climate and non-climate drivers. These seems like a great case study to really bring home the point around the complexity of attributing changes to climate change in a complex system, but still demonstrating that climate change is in fact a driver (UNITED STATES OF AMERICA)
999	22	49	4	49	4	" I propose the use of 'Maasai' instead of 'Masai'" (UNITED REPUBLIC OF TANZANIA)
1000	22	49	7	49	7	Delete comma after 'beans' (Burt, Peter, University of Greenwich)
1001	22	49	13	49	13	Delete '('. (Burt, Peter, University of Greenwich)
1002	22	49	25	49	25	Delete comma after 'Louis' (Burt, Peter, University of Greenwich)
1003	22	49	28	49	28	Delete colon after 'Dakar'. (Burt, Peter, University of Greenwich)
1004	22	49	40	49	40	Delete comma after 'chnages'. (Burt, Peter, University of Greenwich)
1005	22	50	2	50	2	... resulting in flooding were recorded' - citation needed. (Bain, Caroline, Met Office)
1006	22	50	4	0	0	"Much heavier" or just "heavier"? (Stone, Dáithí, University of Cape Town)
1007	22	50	5	50	5	Delete comma after 'houses'. (Burt, Peter, University of Greenwich)
1008	22	50	8	50	8	Delete comma after 'diseases' (Burt, Peter, University of Greenwich)
1009	22	50	9	50	9	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1010	22	50	19	50	24	Citations should be provided in support of the statements in this paragraph. (Mach, Katharine, IPCC WGII TSU)
1011	22	50	24	50	24	Change 'depends' to 'depend'. (Burt, Peter, University of Greenwich)
1012	22	50	27	0	0	Section 22.5.3. Since this section was not included in the current draft, it should not be included in the final draft, as it has not undergone review. (Mach, Katharine, IPCC WGII TSU)
1013	22	50	27	50	31	I would omit this section - see previous comments. (Archer van Garderen, Emma, CSIR)
1014	22	50	27	50	31	Add section on migration or delete. However, strong case on migration is needed to support some of the statements discussed in the chapter (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
1015	22	50	32	0	0	Section 22.6. In the final draft, this section should be shortened as much as possible. (Mach, Katharine, IPCC WGII TSU)
1016	22	50	36	50	37	This statement could be more clearly supported by relevant citations. Additionally, wording of the statement could be revised to avoid interpretation of a prescriptive formulation. (Mach, Katharine, IPCC WGII TSU)
1017	22	50	36	50	54	It could be mentioned that in some cases deforestation is actual an adaptive measures (thus often maladaptive) to climate change, and so we need to both integrate mitigation and adaptation, but also ensure that at the least, one is not harming the other. (UNITED STATES OF AMERICA)
1018	22	50	41	50	43	The formulation of this statement is somewhat prescriptive and could be revised. (Mach, Katharine, IPCC WGII TSU)
1019	22	50	43	50	43	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
1020	22	50	44	50	44	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1021	22	51	3	51	3	Change 'cooperatives' to 'co-operatives'. (Burt, Peter, University of Greenwich)
1022	22	51	10	51	10	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1023	22	51	12	51	12	Wording of this statement using "need" could be interpreted as prescriptive, and the chapter team should consider rewording it. (Mach, Katharine, IPCC WGII TSU)
1024	22	51	15	51	15	Deleet space before 'Nasi' (Burt, Peter, University of Greenwich)
1025	22	51	15	51	16	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
1026	22	51	17	51	17	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1027	22	51	26	51	26	Delete comma after 'Africa' (Burt, Peter, University of Greenwich)
1028	22	51	30	51	30	Delet comma after 'livelihoods'. (Burt, Peter, University of Greenwich)
1029	22	51	33	51	43	Could reference remarkable progress on wind energy made by Cape Verde, a major African and global, success story on wind energy. (UNITED STATES OF AMERICA)
1030	22	51	34	51	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1031	22	51	35	51	35	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1032	22	51	39	51	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1033	22	51	42	51	42	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1034	22	52	7	0	0	"pledged" should be replaced by "committed" given the wording in UNFCCC decisions. Reference: Copenhagen Accord: para 8, lines 6+11 (Page 7) (GERMANY)
1035	22	52	8	52	9	US\$ 100 per annum or US\$ 100 billion/million per annum? (NETHERLANDS)
1036	22	52	8	52	9	US\$ 100 per annum or US\$ 100 billion/million per annum? (NETHERLANDS)
1037	22	52	9	52	9	'per annum' should be in italics. (Burt, Peter, University of Greenwich)
1038	22	52	9	52	9	Should the figure be US\$100 billion per annum? (Bain, Caroline, Met Office)

#	Ch	From Page	From Line	To Page	To Line	Comment
1039	22	52	29	52	30	"general consensus" among whom? Questionable whether developed country parties agree to this statement. (GERMANY)
1040	22	52	33	52	35	It is recommended to add "It requires also a regulatory framework, which guarantees e.g. property rights." Reference: IPCC AR5 WGIII Draft 2 Ch. 16 p.:27; line 30-33 (GERMANY)
1041	22	52	38	52	38	Comma missing after author surname in reference. (Burt, Peter, University of Greenwich)
1042	22	52	39	52	40	We cannot support the causal relationship being created in this sentence: we do not have an indication for a particularly "high degree of fund mismanagement with regard to climate finance and adaptation funds..." . From our point of view, it is neither better nor worse than development finance. Complexity, uncertainty and novelty are aspects which are not alien to current development finance. Therefore we suggest to replace this sentence with: "The risk of fund mismanagement with regard to climate finance and adaptation funds needs to be borne in mind. The level of complexity, uncertainty, and novelty that surrounds many climate finance issues would, inter alia, require a longer-term....." (GERMANY)
1043	22	52	43	52	43	I am not happy about citing references as 'forthcoming'. What happens if they are not published (and worse, if flaws in the data/methodology arise during review)? (Burt, Peter, University of Greenwich)
1044	22	52	47	0	0	Section 22.7 needs to be written in paragraphs. Other research gaps besides adaptation should be added. (Chatterjee, Monalisa, IPCC WGII TSU)
1045	22	52	47	53	36	Section 22.7: In the first paragraph it is mentioned that money is spent on foreign-led research so it is important to include 'science capacity needs to be built to carry out climate research in African institutions' in your bullet points (Bain, Caroline, Met Office)
1046	22	52	47	53	36	Climate monitoring' should be included in the bullet point list (Bain, Caroline, Met Office)
1047	22	52	49	53	35	One of the biggest problem Africa faces is of course the low level of quality research output from African researchers. African governments don't make significant investment in research, innovation, science and technology and education related to climate change, mitigation and adaptation. The authors have highlighted this briefly in page 52-53 but this gap has not been adequately reflected in the policy or technical summary level. African led climate research on climate change and its impact would provide relevance to the diversities of climate change adaptation strategies being proposed. Strengthening African research capacity is therefore key and should be prioritised (NETHERLANDS)
1048	22	52	49	53	35	The list of research gaps on page 53 (section 22.7) is, unfortunately, another laundry list. No doubt everyone thinks their research is the most important but.... is there a way of ordering it differently? Some research gaps are very broad, others very specific, so some may be subsets of the first; or by us suggesting some are more pressing than others (difficult)....the other issue is that these are identified as research issues/gaps, it would be more useful I think to see them presented as research questions if/where possible to sharpen up the focus e.g. "monitoring adaptation" is listed but that's so broad. (UNITED STATES OF AMERICA)
1049	22	52	50	52	54	This is a long sentence in which the second half is not adequately connected to the first half. Rephrasing is suggested. (CANADA)

#	Ch	From Page	From Line	To Page	To Line	Comment
1050	22	53	2	53	2	It does not seem that "data and research gaps" is a complete descriptor for all items in this list, and the wording here could be considered. (Mach, Katharine, IPCC WGII TSU)
1051	22	53	11	53	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
1052	22	53	19	53	19	Split infinitive: move 'further' to after 'develop'. (Burt, Peter, University of Greenwich)
1053	22	53	22	53	22	Split infinitive: move 'effectively' to after 'combine'. (Burt, Peter, University of Greenwich)
1054	22	53	40	0	0	FAQ 22-1 Authors should consider clarifying types of migration: rural – urban, across countries, across region, and highlight communities that are more prone to migrating, and ways in which migration change the exposure of a migrant to climate related impacts? (Chatterjee, Monalisa, IPCC WGII TSU)
1055	22	53	40	53	49	Also note that climate change and environmental factors are only part of more complex web of causes of migration in Africa. They shouldn't be seen as primary, as social factors may be primary draws. See Zommers, Z and Macdonald, D. (2012) " Protected Areas as Frontiers for Human Migration" in Conservation Biology, 26 (3), 547 - 556. (UNITED STATES OF AMERICA)
1056	22	53	51	0	0	FAQ22.2: the answer to this FAQ is very general and not specific to Africa at all. It fits better in chapter 7. Suggest deleting this FAQ from chapter 22. (Yao, Xiangjun, Food and Agriculture Organization of the United Nations (FAO))
1057	22	53	52	0	0	this definition of food security is not consistent with chapter 7. needs to cross reference chapter 7. (Yao, Xiangjun, Food and Agriculture Organization of the United Nations (FAO))
1058	22	53	52	53	52	Delete comma after 'utilization'. (Burt, Peter, University of Greenwich)
1059	22	54	8	54	9	The final sentence should be rephrased or removed as there was no firm indication in section 22.3.5. that gastro-intestinal diseases would increase under climate change, and the evidence for malaria suggested some increases and some decreases depending on location. (Bain, Caroline, Met Office)
1060	22	54	11	54	11	See Ted Miguel's at University of California Berkley and study in PNAS (2009) "Warming increases the risk of civil war in Africa" by Marshall B. Burkea,, Edward Miguelc, Shanker Satyanathd, John A. Dykema, and David B. Lobell (UNITED STATES OF AMERICA)
1061	22	54	17	0	0	Is “conflict” the right word here? I think you mean to say that there will be increased issues that could potentially be the seeds of conflict, rather than that there will be increased conflict per se. (Stone, Dáithí, University of Cape Town)
1062	22	54	44	54	44	Why bold text? (Burt, Peter, University of Greenwich)
1063	22	58	34	58	35	"there is nothing much to do here since these are references- you can see that even the authors of this paper has found difficulties in using one name only" (UNITED REPUBLIC OF TANZANIA)
1064	22	60	30	60	30	Why bold text? (Burt, Peter, University of Greenwich)
1065	22	66	20	66	20	Why bold text? (Burt, Peter, University of Greenwich)
1066	22	66	27	0	0	Spelling error - 'vance Guard' should read 'Advance Guard' (Galloway McLean, Kirsty, United Nations University - Institute of Advanced Studies)
1067	22	75	39	75	39	"there is nothing much to do here since these are references- you can see that even the authors of this paper has found difficulties in using one name only" (UNITED REPUBLIC OF TANZANIA)

#	Ch	From Page	From Line	To Page	To Line	Comment
1068	22	76	47	77	15	References out of alphabetical order (in Scottish surnames 'Mac' and 'Mc' are treated the same, therefore this block should appear before the MacDonald references). (Burt, Peter, University of Greenwich)
1069	22	95	0	0	0	Table 22-1, Tanganyika: I do not see how the 0.9C matches the 1.3C warming. My understanding is that the attribution of biomass reduction still requires some qualification (unlike, say, the vertical warming profile). (Stone, Dáithí, University of Cape Town)
1070	22	95	0	0	0	Table 22-1, Kariba: My reading is that there is still much lack of clarity on whether the ecological changes are responding to climatic drivers or other drivers. Chapter 18 cites additional discussion. (Stone, Dáithí, University of Cape Town)
1071	22	95	0	0	0	Table 22-1, Victoria: Upper levels equals below 250m? (Stone, Dáithí, University of Cape Town)
1072	22	95	0	0	0	Table 22-1: Chilwa: But is this normal or not? (Stone, Dáithí, University of Cape Town)
1073	22	95	0	0	0	Table 22-2 Authors may wish to add similar information from other cities of Africa in this table. (Chatterjee, Monalisa, IPCC WGII TSU)
1074	22	95	0	0	0	Table 22-1: Source reference for Lake Kivu is missing. Sources may be presented in a separate column to increase readability of the table. (Estrada, Yuka, IPCC WGII TSU)
1075	22	95	0	0	0	Table 22-1. The "?" provided within the 1st entry should be clarified. (Mach, Katharine, IPCC WGII TSU)
1076	22	95	1	95	1	Table 22-1: second row, second col: Provide citation for quantity to replace the (?). Evidence must be shown to quote this figure (Bain, Caroline, Met Office)
1077	22	95	1	95	1	Table 22-1: There is inconsistent use of brackets in the table for citations - suggest the authors review (Bain, Caroline, Met Office)
1078	22	95	1	95	1	Table 22-1: Final row: Should add to box on lake Chilwa 'Reacts strongly to variations in rainfall.' As you are not really showing this is a climate change impact but is a climate variability feature. (Bain, Caroline, Met Office)
1079	22	95	2	95	2	Table 22-2: Caption citation should read Cartwright (Bain, Caroline, Met Office)
1080	22	95	2	95	2	Table 22-2: What do the percentages refer to after the text in column 1? Should be clarified in label (Bain, Caroline, Met Office)
1081	22	96	0	0	0	Table 22-4 A ES finding on gender based on this table and discussion in chapter would be very useful. (Chatterjee, Monalisa, IPCC WGII TSU)
1082	22	96	0	0	0	Table 22-4. The acronym HRBA should be specified. (Mach, Katharine, IPCC WGII TSU)
1083	22	97	0	0	0	Fig.22-1: Change "Observed and simulated variations" to "Observed and simulated changes" since the figure shows changes not variations. (Rowell, David, Met Office Hadley Centre)
1084	22	97	0	0	0	Figure 22-1: Africa-Annual maps should be replaced with 4 seasonal maps - Southern Africa Dec-Feb, Eastern Africa March-May and Oct-Dec, and northern africa June-September. (UNITED STATES OF AMERICA)
1085	22	97	0	0	0	Figure 22-1 should be integrated in the physical climate section of the chapter. (Chatterjee, Monalisa, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
1086	22	97	1	97	1	Figure 22-1: It would help the reader to follow the panels referred to in the caption if labelling was used (a), (b) etc. At the moment it took me a while to match up the descriptions with the correct panel. (Bain, Caroline, Met Office)
1087	22	97	1	104	1	The figures in general are poorly produced, often badly labelled with tiny writing and the captions are not descriptive enough to follow (Bain, Caroline, Met Office)
1088	22	98	0	0	0	Fig.22-2: Please label each panel, as it is not clear which panels show which regions. (Rowell, David, Met Office Hadley Centre)
1089	22	98	0	0	0	Figure 22-2: The seasons plotted should vary by region: DJF for southern Africa, MAM for eastern Africa, etc. (UNITED STATES OF AMERICA)
1090	22	98	0	0	0	Figure 22-2 should be integrated in the physical climate section of the chapter. (Chatterjee, Monalisa, IPCC WGII TSU)
1091	22	98	0	0	0	Figure 22-2. It would seem preferable to adjust the y-axis of the plots so that the plumes are fully contained within the boxes. Additionally, it would be helpful to label the plots with the acronyms for each sub-region. Within the caption itself, the quotations placed around relevant components seem a bit awkward to read and could be deleted. Finally, is the relevant range of years 1986-2006 or 1986-2005? (Mach, Katharine, IPCC WGII TSU)
1092	22	98	1	98	1	Figure 22-2: The rows should be labelled on the left hand side according to the region e.g. 'AMU', 'Eastern + Southern COMSEA' etc. It would also be helpful to label the columns 'precip' and 'temp'. The writing in the key to the colours is very small and difficult to read - this only has to be shown once really. (Bain, Caroline, Met Office)
1093	22	98	1	98	30	The absence of warming since 1998 is conceaked (Gray, Vincent, Climate Consultant)
1094	22	99	0	0	0	Figure 22-3 should be integrated in the chapter discussion on impacts on different sectors. (Chatterjee, Monalisa, IPCC WGII TSU)
1095	22	99	0	0	0	Figure 22-4 Not clear if the figure is really needed. Perhaps drop? (Chatterjee, Monalisa, IPCC WGII TSU)
1096	22	99	0	0	0	Figure 22-3. The chapter team could consider including a supplemental table for this figure, to provide further information, for example as done in chapters 3 and 6. (Mach, Katharine, IPCC WGII TSU)
1097	22	99	0	0	0	Figure 22-3: Given that two different types of attribution are presented in the two panels, please consider specifying the difference in the y-axis of each one. (Mastrandrea, Michael, IPCC WGII TSU)
1098	22	99	1	99	1	Figure 22-3: What do the stars/ squares/ circles mean? How were these qualified? I don't feel that the positions on the chart were qualified by the text in the main report. I suggest you remove this figure or explicitly state which papers were used to decide confidence levels. (Bain, Caroline, Met Office)
1099	22	99	2	99	2	Figure 22-4: This is poorly presented. It would be more useful to have the number of undernourished people on the same graph as total population so that the two increases can be compared. (Bain, Caroline, Met Office)

#	Ch	From Page	From Line	To Page	To Line	Comment
1100	22	100	0	0	0	Figure 22-5: Use of colors – It is confusing that two panels are illustrating completely different sets of information but using similar colors. Suggest changing the color schemes. A) Some shades of greens are similar and cannot distinguish one from another (i.e. temperate broadleaf forest vs. tropical evergreen broadleaf forest). B) Suggest change colors for Medium, Low and very low categories so that they will be distinctively different from colors used for the vegetation types in panel A. (Estrada, Yuka, IPCC WGII TSU)
1101	22	100	0	0	0	Figure 22-5. For part A of this figure, it would be helpful to clarify what is meant by "worst-case" and how it was determined. Additionally, the colors used could be clarified--does each color indicate the new biome type? (Mach, Katharine, IPCC WGII TSU)
1102	22	100	1	100	1	Figure 22-5: I'm not sure how to interpret this figure - does figure (a) suggest these will be what the vegetation changes to? Or what type of vegetation is vulnerable? Also the colours are quite similar at the start and end of the colour scale. (Bain, Caroline, Met Office)
1103	22	100	1	100	1	Figure 22-5: Figure panels need to be labelled (a) and (b) (Bain, Caroline, Met Office)
1104	22	101	0	0	0	Figure 22-6 Not clear if the figure is really needed. It should be used more prominently in the chapter discussion. And efforts can be made to make this figure more accessible. (Chatterjee, Monalisa, IPCC WGII TSU)
1105	22	101	1	101	1	Figure 22-6: Should be explained in the caption that the 'numbers are calculated from different emmissions scenarios, for more information see SEI (2009)' (Bain, Caroline, Met Office)
1106	22	102	0	0	0	Figure 22-7 It is also important for policymakers to understand risks estimated for the mid-term, or the period in between the era of climate responsibility (2030-2040) and era of climate options (2080-2100); and therefore, a figure should be included for global average warming of 3 degrees Celsius above preindustrial. Furthermore, given the diversity of regional risks and effective adaptation, the risk levels provided relate to different phenomena and adaptation choices are difficult to compare; and therefore, the figure should be revised to provide examples of the projected risks and adaptation choices considered in producing the figure and to include comparable numerical values. (JAPAN)
1107	22	102	0	0	0	Figure 22-7: The text on this figure is so small as to be illegible. (UNITED STATES OF AMERICA)
1108	22	102	0	0	0	The labels are small and hard to see. (Stone, Dáithí, University of Cape Town)
1109	22	102	0	0	0	I am not clear on the purple, yellow, and red bands. Are they the ranges in risk? Why do the blue lines not have ranges too then, as I doubt we understand present risk perfectly? (Stone, Dáithí, University of Cape Town)
1110	22	102	0	0	0	Is the +2/4C above present, pre-industrial, etc.? What warming does the present correspond to here? (Stone, Dáithí, University of Cape Town)
1111	22	102	0	0	0	Why are some categories blank? (Stone, Dáithí, University of Cape Town)
1112	22	102	0	0	0	Figure 22-7: How is it possible that human security has a risk level below that of its drivers - poverty, water, access to food ? Please check that the definition of human security used here is consistent with that provided in the glossary (which includes capacity to live in dignity, etc.) (Marbaix, Philippe, Université catholique de Louvain)

#	Ch	From Page	From Line	To Page	To Line	Comment
1113	22	102	0	0	0	Figure 22-7: This figure is difficult to read. Could you consider the addition of a "risk level" scale on each panel -- lines or tick marks at each level + labels somewhere along these ? Another possibility could be to have a completely different design: have all the "wedges" put vertically, with a vertical temperature scale, use colors for the risk levels, and use the horizontal dimension to show the two extremes of adaptation for each sectors - low and high adaptation. (Marbaix, Philippe, Université catholique de Louvain)
1114	22	102	0	0	0	Figure 22-7 Discussion in impacts sector should be the traceable account for findings provided in this figure. (Chatterjee, Monalisa, IPCC WGII TSU)
1115	22	102	1	102	1	Figure 22-7: This figure is extremely difficult to read and interpret. The text on the figure is too small to read. The description in the caption is inadequate: what is the difference between the coloured and the grey shading? How are risk levels decided upon? Where does this information come from - is this adapted from a report? If so you should give the citation. (Bain, Caroline, Met Office)
1116	22	103	0	0	0	Figure 22-8 EBA cross chapter box also has a figure perhaps referring to the cross chapter box and its figure would be most efficient. (Chatterjee, Monalisa, IPCC WGII TSU)
1117	22	103	0	0	0	Figure 22-8: It needs some revisions but this figure could complement Figure EA-1 in the cross-chapter box which is the illustrated schematic approaches of EBA. TSU can help further to develop this figure. (Estrada, Yuka, IPCC WGII TSU)
1118	22	103	1	103	1	Figure 22-8: This figure is difficult to interpret and it is not clear what it is supposed to show. What do the arrows refer to? Why are the top right hand boxes left out of the remainder of the flow diagram? It is not clear which order it should be read in. (Bain, Caroline, Met Office)
1119	22	103	2	103	2	Figure 22-9: Why are costs increasing every year? Surely infrastructure put in place in 2000-2040 will anticipate worse case scenarios? How are the costs separated from any 'Business as usual' infrastructure needs? I would suggest removing this figure or at least explaining the circumstances of the calculations in greater detail otherwise there is risk of misinterpretation or misuse. If it is kept in, the labels in the key should be explained - what is NoSLR??? What is Rahmstorf?? (Bain, Caroline, Met Office)
1120	22	104	0	0	0	Figure 22-10. The timeframe for the migration data provided here should be specified. (Mach, Katharine, IPCC WGII TSU)