

#	Ch	From Page	From Line	To Page	To Line	Comment
1	12	0	0	0	0	There is some literature you include that, according to my information, does not fulfill the peer-review criteria in the same way as journal articles do. This includes, for instance, the book of Webersik (2010) and the edited volume of Peluso/Watts (2001) (there are some others but I am not so sure about those). (Ide, Tobias, Research Group Climate Change and Security)
2	12	0	0	0	0	After the criticism by people like Gleditsch that the broader social and political implications of climate change were neglected in the last report, it's highly welcome that the IPCC now dedicates ample space to them (notably Chapters 12 and 13, as well as various sections in Chapters 18 and 19). Human security is as good as any other umbrella term for this, and it's very much in line with the IPCC's mandate. But, obviously, the introduction of the broader social and political implications of climate change entails an enormous responsibility for you to get it right. The chapter needs to be based on the full spectrum of the available scholarly and peer reviewed literature, rather than reflecting the personal views of the lead and contributing authors. I'm afraid that, in some places, I have a lingering sense that you present your own "critical" views while not allocating enough space to the views criticized. For example, you devote ample space to literature critical of the notion of "climate refugees" while hardly devoting any space to those who have introduced that notion in the first place. While this is fairly common in social scientific circles, in the context of an IPCC report it is problematic because critics may then accuse you of being biased. (Friedrichs, Joerg, University of Oxford)
3	12	0	0	0	0	While the previous Assessment Report could be criticized for having been written largely by natural scientists with little sensitivity for social scientific debates and concerns, the present chapter can perhaps be criticized for the reverse. There are only few linkages to specific scientific evidence or modelling projections about climate change (the remit of the Working Group I). Moreover, you follow the practice of many social scientists of reducing climate change to extreme weather events (and hazards) while devoting far less attention to climate change as a source of chronic stressors. An example for this is the section on migration where you discuss displacement by catastrophic events far more than slow-motion migration scenarios driven by continuous environmental change. (Friedrichs, Joerg, University of Oxford)
4	12	0	0	0	0	While the usual criticism is that the IPCC is too "alarmist", you sometimes go to the other extreme. It's fair enough to state that available data from recent decades or centuries do not show a compelling link between, say, weather extremes and the outbreak of social violence. But it's also fair to bear in mind that the last couple of centuries have not witnessed the kind of climate change predicted for the next few generations. Therefore, it is dangerous to only extrapolate recent trends without considering the danger of discontinuities. For example, you state that various forms of international support have mitigated the effects of environmental crises. That's true, but international aid itself may suffer if climate change stresses affluent societies. It appears problematic to simply assume the continuation of globalization and industrial society. In other words, more alarmist views should get a fair hearing. (Friedrichs, Joerg, University of Oxford)
5	12	0	0	0	0	(1) The whole chapter is built on a "climate change" that is not defined in its scope or intensity, and a link between climate change and "extreme weather events" (storms, floods, etc.) that is even less defined. This base seems much too weak to proceed to conclusions; (2) Even if the scientific base was sound and solid, to proceed to conclusions (adverse effects for "human security" of these changes) supposes value judgments, which should be formulated. (Godefridi, Drieu, Cogito)
6	12	0	0	0	0	There is some discussion of water as a human security issue, but minimal reference to food security. Although there is an entire chapter focused on this issue, food security/human security could also be highlighted further in this chapter, with reference to the food security/health chapters. (McMichael, Celia, La Trobe University)

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7	12	0	0	0	0	The chapter looks at the association between climate impacts and human security, however, it does not relate this to actual projections of climate change. This means it is a general exploration of how weather and climate relates to human security, not an assessment of what the consequences of the actual levels of change that scientific research is projecting will mean. Not surprisingly the conclusions drawn from this are unclear and vague. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
8	12	0	0	0	0	It is not possible for a policy maker to gather information for decision-making in response to the potential consequences of climate change from this chapter. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
9	12	0	0	0	0	Climate-induced migration: impacts that the receiving communities and areas may themselves undergo are an aspect that is completely missing in this chapter. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
10	12	0	0	0	0	We appreciate the inclusion of Inglehart & Norris, Chatterjee, Foresight, and a range of sources that comprise what this Chapter aims to be: "the first systematic assessment across the dimensions of human security". However, from the first sentence of the executive summary we notice a trend that runs throughout this chapter: namely, the primacy given to culture and identity. While cultural aspects are indeed important enough to warrant sufficient coverage, the primacy given to it here and overall might need reconsideration, particularly when weighed against the prospects of increasing disasters, violent conflicts, diseases, death tolls, access to essential resources for survival, and the increasing securitization of socio-economic sectors/rights... That said, we appreciate the note that cultural analyses increase the explanatory power of models of risk. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
11	12	0	0	0	0	The SOD version of the chapter on human security has significantly improved in quality and in the effort to include references from scholars from outside of the OECD world. However, there is an overemphasis on scholarship from a few OECD countries and the peer-reviewed scientific contributions of scholars from the global South and from BRIC countries are still not adequately represented. With a few exceptions only the scholarship published in English is assessed. This may not be representative of the global scholarship on climate change and human security. The work of scholars from China, India, Russia and the Arab World is nearly totally lacking and from those countries that will be affected most by the impacts of climate change on human security. Among the authors (CLA, LA, CA) there were 7 from English speaking (3 from the UK, 2 from the USA, 2 from Australia, compared with 5 from the rest of the world (1 from Norway, Philippines, Mexico, South Africa and Colombia). This composition of the group of authors may explain that the scholarship from large parts of the world may not be sufficiently included in this chapter. (Brauch, Hans Guenter, Free University of Berlin)
12	12	0	0	0	0	The chapter on "human security" has added section 12.6 on the "National Security Dimensions of Climate Change." However, it still ignores the rich policy debate and scientific discourse on the international security dimension of climate change, e.g. in the UN General Assembly, the UN Security Council, by regional arrangements under Chapter VIII of the UN Charter, by the European Council and Commissions and by many other global (World Bank, UNDP, UNEP, IOM) and of many regional organizations. Also the human security debate within the United Nations system, the two reports of its Secretary-General on Human Security of 2010 and 2012 and the peer-reviewed scientific literature that analysed these discourses are ignored. There is no single reference to international security (except for the citation of the journal International Security) in this chapter. (Brauch, Hans Guenter, Free University of Berlin)
13	12	0	0	0	0	No further comment. I find the chapter well written, well referenced, and convincing overall. I look forward to its publication (Ross, Helen, The University of Queensland)

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14	12	0	0	0	0	Chapter is very well written, but the word 'evidence' is overused. It is important not to use it without really showing evidence. The chapter also needs a more nuanced way when dealing with mobility, migration and displacement. The author(s) should be careful with using these terms and not placing them as synonyms. (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
15	12	0	0	0	0	In Chapter 12 of the report, it is stated that climate engineering contradicts the “1977 UN Convention on the Prohibition of Military and Any Other Hostile Use of Environmental Modification Techniques”. However the Convention underlines that it is not cover cases of peaceful activities. (RUSSIAN FEDERATION)
16	12	0	0	0	0	The ILO centers its attention to the repercussions of the impacts and adaptation to CC for social justice and the protection of vulnerable people. One of its strategies focuses on the Local Resource-Based approach for developing infrastructure. Infrastructure plays a major part in adaptation to climate change and rural infrastructure will be particularly badly hit. This approach integrates the combined use of local participation in planning with the use of locally available skills, technology, materials and appropriate work methdos. (Local investments for climate change adaptation: Green jobs through green works . A guide for identifying, designing and implementing interventions in support of climate change adaptation at local level, ILO Regional Office for Asia and the Pacific, 2011) See, pp 78-100 http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_172716.pdf (Harsdorff, Marek, ILO)
17	12	0	0	0	0	For greater development on Rural Transport and Climate Change see Ob. cit. ILO Regional Office for Asia and Pacific Bangkok 2011, pp.200-2323 (Harsdorff, Marek, ILO)
18	12	0	0	0	0	As would be expected from this very strong chapter author team, this draft is thorough, thoughtful, and balanced. It covers an enormous amount of knowledge, which is a notable strength. In the process, however, it has become more of a summary of knowledge than an assessment of knowledge to determine major findings, which is to some degree a weakness. The challenge, of course, is that this is a new topic for IPCC, and bringing together the relevant knowledge is a necessary step; but the Executive Summary shows how difficult it is at this stage to extract a few coherent general findings.\nWithin the chapter, the section on environmental migration is especially strong, benefiting from recent literatures such as the British Foresight report. The section on climate change and conflict is especially important, because this is probably the most salient human security issue for IPCCs governments. In this connection, the author team should compare their findings and references with the recent US NAS/NRC report on Climate and Social Stress (2013). \nThere are other cases as well where the chapter, despite its long list of references, misses some significant contributions. Another example is the discussion of traditional sources of knowledge, which should consult and reference the book that developed from the Millennium Ecosystem Assessment: Bridging Scales and Knowledge Systems (Reid et al., eds., 2006). (UNITED STATES OF AMERICA)

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19	12	0	0	0	0	Chapter 12 was weak in making the link between climate change and human security, given the variables of human security promoted by the United Nations at the time of the 94 Human Development Report. Since that time the relationship between human security and state security has been accepted; primarily that, state security turns on maintaining its legitimacy in the eyes of the people (freedom from want), and that environmental change can place demands on the political system that must be met to prevent state failure. The summary below comes from, The Human Security Framework and National Human Development Reports, UNDP, 2006. The 1994 global HDR argued that the concept of security has "for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy, or as global security from a nuclear holocaust. It has been related more to nation states than to people." This narrow approach was categorically widened to include the safety of individuals and groups from such threats as hunger, disease and political instability; and protection from "sudden and hurtful disruptions in patterns of daily life." The report went on to further identify seven core elements that - when addressed together - reflect the basic needs of human security: economic security, food security, health security, environmental security, personal security, community security and political security. Suggest that the authors incorporate this definition, and this reference in the report. (UNITED STATES OF AMERICA)
20	12	0	0	0	0	Developing a topic new for the IPCC Report is challenging, especially when the topic does not have a single discipline or information base upon which to review and make an informed assessment and judgment of how, in this case, climate change can affect human security. The authors should be commended for their efforts in developing this Chapter. The Chapter is well organized and structured. The Executive Summary is concise, direct, and the writing style is clear and tells a cohesive story. The use of estimative language used with each take-home message is appropriate, and helps set the nature of the topic, and expectations for the reader on what to look for in detail later in the Chapter. The individual Sections of the Chapter would benefit from that same approach, and provide estimative language on the reporting itself, as well as on the assessment and judgment of the affect of climate change on human security. In general, each Section in the Chapter presents inconclusive findings on the affects of climate change on some aspect of human security. The Sections introduce how climate change may have the greatest affect on human security often through unintended indirect affects by crippling the very social institutions, infrastructure, or policies designed to ensure human security. However, the Sections lack estimative language on the confidence of the quality of data used to make such as assessment, and the likelihood that the assessment is accurate. This is likely a consequence of incomplete or at times fragmentary information that are not a fact, proof, or knowledge that definitively links the topics of climate change to some element of human security. In addition there seem to be instances where the Section is unable to assess the likelihood of climate change affecting human security because of data gaps where relevant information is nonexistent or fragmented. (UNITED STATES OF AMERICA)

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21	12	0	0	0	0	Each Section would benefit from estimative language on the confidence of the observations and the likelihood of the predicted outcomes of climate change on human security. The Chapter presents how well-understood historic conditions of vulnerability and adaptation can be used to predict future impacts of climate change on human security. However, the Chapter does not address the likelihood that over time and across regions, risk and vulnerability of human security to the impacts of climate change will change. Just as climate is not static, neither are cultures and institutions. It is possible, then, that those currently not vulnerable to the affects of climate change, and who can adapt and mitigate the impacts of climate change, today, may not be able to do so in the future, and likely face new challenges of vulnerability not presently considered. The past may not predict the future. For example, the Chapter addresses in great detail the challenges facing indigenous populations, but provides little balance in discussion to the relatively larger number comprising the remaining world's population's risk to climate change impacts. The assumption is that the past, well understood conditions of vulnerability will predict the future climate change impacts on human security. Is this a valid assumption? It may not be, and further highlights the need for targeted data collection to answer such questions to better inform policymakers. (UNITED STATES OF AMERICA)
22	12	0	0	0	0	Health is conspicuously missing as an aspect of human security. While extensively discussed elsewhere, it needs to be woven into the broader discussion of human security, particularly as it bears on other issues, such as cost, livelihoods/income, state functioning, and capacity for adaptation. How might climate change induced changes in health (disease, injury, heat) interact with other factors such as extreme weather events, migration, increased urbanization? (UNITED STATES OF AMERICA)
23	12	0	0	0	0	In a chapter that is pushing at the frontiers of currently available knowledge, it would be very helpful for it to end with a short section on priorities for improving knowledge in order to strengthen capacities to answer questions about climate change and human security. (UNITED STATES OF AMERICA)

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24	12	0	0	0	0	Issues of power and political economy are given short shrift, though they are referenced, for example on pages 12 and 19. This is an area where there are few references in other parts of the AR5. The links to human security should be evident and this chapter should expound on them. Ch. 14.2 references a political economy approach to adaptation that looks at social vulnerability; Ethics and Political Economy are discussed fleetingly in 17.3.5; 20.2.1.2 brief reference to the political economy of climate change. Power and status are discussed briefly in other parts of the document, e.g. 13.1 and 13.2 in terms of differential ability to adapt or migrate (also 12). The particular issue of who benefits from (or perceives that they benefit from) the status quo is of particular importance, as change to the status quo will require addressing the perceptions of these actors and enlisting them in the broader process of change. The discussion of culture and human security is important, but perhaps too narrow in that it prejudices indigenous and traditional knowledge. These are important and should not be lost. The point that local/traditional forms of knowledge are important for broader human security is particularly salient. However, it would be helpful to add a discussion of broader/dominant cultural issues and how they impact on human security vis a vis climate change. For example, how mental models impact acceptance or denial of climate change and disconnects between expert vs. lay knowledge and opinion. See, for example, http://dx.doi.org/10.1016/j.gloenvcha.2006.05.001 , http://link.springer.com/article/10.1023/B%3ACLIM.0000024781.48904.45#page-1 Economic cost is largely absent from the discussion in Chapter 12, but there are several aspects of cost that are critically important and for which there is accumulating data, for example the cost of loss of ecosystem services (FAQ 4.4), the increasing cost of weather-related disaster, as in Chapter 5, costs of global adaptation (Ch 17), costs of extreme weather events (Chs 10 & 18), reduced cost of using ecosystem adaptation in urban areas (Ch 8), 85% of the global cost of adaptation is in developing countries (Ch. 3 – this also links back to issues of political economy), the high cost of inaction (5.4.3, 5.5.3), increasing cost of food in Asia as a result of climate change (Ch. 24). All of these costs of course also relate to the ability of individuals, communities, and states to adapt and to manage climate-related threats. The consensus seems to be that cost of natural disasters is increasing, which seems largely due to expanding human infrastructure and development in areas prone to flooding or other weather-related (See this review of the cost of economic disasters: http://www.rff.org/RFF/Documents/RFF-DP-12-28.pdf The article cites (Kahn, M.E. 2005. The Death Toll from Natural Disasters: The Role of Income, Geography, and Institutions. The Review of Economics and Statistics 87(2): 271–284) a correlation between income inequality and higher fatalities in natural disasters as well as a correlation between democracy and decreased fatalities. See also the International Disaster Database: http://www.emdat.be/natural-disasters-trends) (UNITED STATES OF AMERICA)
25	12	0	0	0	0	Overall, the authors should be commended for doing an excellent job synthesizing the nuanced findings from a vast literature that has grappled with how climate change relates to human security. On the specific issue of how climate change influences the risks of armed conflict, the authors have done an excellent job conveying the consensus among conflict researchers. Climate change, in and of itself, is not a driver of violent armed conflict. Rather, as the authors make clear, its effects are conditioned through a complex set of intervening factors (foremost among them being whether a society's institutions govern legitimately and effectively). Accordingly, any assessment of the impact of climate change and its potential for increasing risks for conflict must be done with systematic accounting for the country context and its existing conflict dynamics. Ensure the chapter retains this balance through editorial process. (UNITED STATES OF AMERICA)
26	12	0	0	0	0	Please add a section on research gaps and needs...including more robust social science methodologies (UNITED STATES OF AMERICA)

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27	12	0	0	0	0	Population growth would seem to be an important human security risk, but is not mentioned in Chapter 12, except in briefly in the context of urban population growth. Population growth is cited throughout the document, for example Chapter 5 notes that population growth is anticipated to put greater numbers of coastal residents at risk; Chapter 7 notes that increased pressure on food security is anticipated as a result of population growth as well as increased per capita consumption; Chapter 8 the stresses on urban centers caused by and anticipated from population growth; 11.3.6, Population growth may be one of the strongest influences on vulnerability to the health effects of climate change (see also 11.6.4); 11.8.4 population growth cited as a primary determinant of water scarcity; 11.9.2 population growth as a factor in terms of overall consumption, emissions, and CAPs; and 16.3.1.2. as a factor in greater resource consumption and ecological degradation. (UNITED STATES OF AMERICA)
28	12	0	0	0	0	Something expected and yet missing from the Chapter was more reporting and assessment of the linkages between climate change and diseases of humans/livestock/agriculture and their affects on human security. The affects could either be direct, affecting human health, or indirect because of loss of confidence in governments, disruption of critical infrastructure, economic loss, migration, or as a trigger for conflict. While this may be covered in Chapter 11, linkages need to be made to this topic in Chapter 12. (UNITED STATES OF AMERICA)
29	12	0	0	0	0	The authors have done an excellent job of summarizing several critical issues in the literature relating to the potential impacts of climate change on human security. They do, however, approach the issue of human security rather narrowly and exclude some important areas, such as human health and ecological degradation+C128, perhaps because they are comprehensively addressed in other parts of the document. However, to be most effective, the chapter on human security should address human security more broadly and articulate linkages between threats or adaptation opportunities, particularly where one issue amplifies or mitigates another. Many of these areas are addressed in other parts of the report and may simply be cross-referenced. Specifically, greater attention to synthesizing the linkages between different impacts would be helpful in better articulating risks to human security from climate change. For example, the link between human caused environmental degradation (and concomitant loss of ecosystem services, including adaptation services) and increased vulnerability to climate change, or the link between climate change induced impacts to human health that decreases income and adaptive capacity of individuals (and increases costs to their family, community, and/or nation). Some connections between impacts are made in this chapter, but given the wide ranging nature of perceived and anticipated climate impacts, better drawing the connections between the varied threats to human security from climate change would make this chapter much stronger. The link, in particular, between human security and ecological systems should be further explored, as this is at the nexus of the issue and there are clear positive and negative feedback loops between ecological degradation/restoration and climate change. \nFood security is also largely missing. While it relates to livelihoods, it is treated separately in AR5 and should be included in this analysis. (UNITED STATES OF AMERICA)
30	12	0	0	0	0	The chapter is certainly weighted toward a strong interpretation of climate change on poverty (as opposed to the opposite direction). Consider finding stories or examples of positive influence, where programs to alleviate poverty also have had strong and positive climate effects. (UNITED STATES OF AMERICA)

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31	12	0	0	0	0	The chapter is internally inconsistent with its perspective on the role of climate in migration and violent conflict. By virtue of the conflicting statements within the chapter, the authors convey that inability to establish causal linkages means that climate is not an important driver. Suggest edits to the chapter to change the tone to reflect that climate is one of many factors that affect migration and conflict, and sometimes can be the trigger or tipping point for seriously destabilizing events. The literature supports several tennants that should be more clearly articulate in this chapter: 1)that climate change may exacerbate existing tensions; 2)climate change may rob weak governments of legitimacy and create underlying conditions that terrorists may exploit and thereby affect both national and human security; and 3) that while we cannot prove causality there is ample evidenced of an important correlation between climate factors and drivers of human security. (UNITED STATES OF AMERICA)
32	12	0	0	0	0	The chapter needs to be clearer about established connections between climate, natural resource scarcity and the elements of human security. Perhaps the best effort to relate natural resources, environmental change, and security is found in the UNEP report of 2009, From Conflict to Peace Building "Since 1990, at least 18 violent conflicts have been fueled by the exploitation of natural resources. Looking back over the past 60 years, at least 40% of all intrastate conflicts can be associated with natural resources." This reference should be included. (UNITED STATES OF AMERICA)
33	12	0	0	0	0	The chapter seems to reflect two differing framings about the connection between climate and violence, arguing at times the climate can be a triggering factor and at other times climate is only ever one of many factors. Suggest that the authors clearly articulate the divergent views early in the chapter to reflect or 'assess' the state of the science, then to treat the divergent perspective more clearly throughout. Presently the attempt to find a middle ground makes the chapter internally inconsistent, confusing and unclear. (UNITED STATES OF AMERICA)
34	12	0	0	0	0	The entire chapter needs a thorough edit for consistence and prudent use of terms especially the use of the words 'impact' and 'impacts'. At present lack of cohesion makes for a difficult read (an acknowledged consequence of multiple contributing authors across disciplines). Frequently 'impacts' appear as both a noun and a transitive verb often in the same sentence; to such an extent that it is unclear as to the consistency in meaning and intent of the word 'impact' from one section to the next. Moreover, when used as a transitive verb, the word "impacts" should be followed by the direct object and not be followed by a preposition. This adds to confused interpretation of the text. For example, page 6, line 12: " ... by which climate change impacts upon the material aspects ... " should be instead, " ... by which climate change impacts the material aspects ... ". The overuse and often uneven use of "impacts" makes for a very dense and unclear reading of the Chapter to the extent that this reviewer often focused more on deciphering the intended meaning and intent of a paragraph and less on creating new knowledge through reading and understanding. This is particularly the case for Section 12.2, "Economic and Livelihood Dimensions of Human Security at Risk from Climate Change". An alternative word choice for impact/impacts that engenders precision in meaning and is applied consistently is needed for Chapter 12. (UNITED STATES OF AMERICA)
35	12	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. Namely, "Locating Climate Insecurity: Where are the Most Vulnerable Places in Africa?" and "Ground Truthing" Vulnerability and Adaptation in Africa. Where references to grey literature are appropriate, the volume "The Arab Spring and Climate Change," produced by the Stimson Center, Center for Climate and Security, and the Center for American Progress, may be appropriate to cite. Research needs highlight in this literature should also be included in a proposed new section on research needs and gaps. The reference here can be found at: http://climateandsecurity.files.wordpress.com/2012/04/climatechangearabspring-ccs-cap-stimson.pdf . Additionally, E3G's "Underpinning the MENA Democratic Transition: Delivering Climate, Energy and Resource Security, should be referenced, appropriate to the restrictions on grey literature. That can be found at: http://www.e3g.org/images/uploads/E3G_MENA_Report_Final_130221.pdf (UNITED STATES OF AMERICA)

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36	12	0	0	0	0	There seems to be a problem related to relying solely on historical data as an evidence base for assessments of climate change impacts on human security. The exclusion of foresight exercises, and future-oriented assessments, such as the National Intelligence Council Global Trends 2030: Alternative Worlds, the National Research Council "Climate and Social Stress: Implications for Security Analysis", has the very real potential to lead to an overly-conservative assessment of human security risks. These kinds of future-oriented assessments should be used and referenced, given the unprecedented rate of change that climate models are demonstrating, and the limited value of historical evidence in this context. (UNITED STATES OF AMERICA)
37	12	0	0	0	0	This chapter as a stand alone topic is a welcome addition to the IPCC structure. The field clearly needs both methodological development and improved data or proxy data. Suggest adding a research needs section at the end of the chapter. Also, the chapter contains a great deal of information but is so dense it is hard to follow. Suggest the authors consider careful use of the words impact and effect as improper use makes some sections quite confusing. (UNITED STATES OF AMERICA)
38	12	0	0	0	0	Throughout the chapter, there does not seem to be a clear distinction between causal and correlative relationships between climate change and human security, nor is there a clear definition of what the authors are describing as the "direct impacts" of climate change on human security. In a landscape of complex causality, it is very important to distinguish and define at the outset. (UNITED STATES OF AMERICA)
39	12	0	0	0	0	We suggest that the chapter 12 and chapter 11 authors confer on role of climate in migration and conflict. Some of the information contained in chapter 11 would be useful for chapter 12, encouraging chapter 12 to be clear that climate is among many factors that affect conflict and migration but can trigger or be the tipping point. Chapter 11 treatment is fair, clear and consistent with the literature from the public health perspective on climate and migration and conflict. Chapter 12 should add a section that articulates the clear role that health and related productivity play in regional security and social conflict, and how climate impacts on health can also be destabilizing. (UNITED STATES OF AMERICA)
40	12	0	0	0	0	Women in food security: The role of women in producing food (in developing countries 60 to 80% of food is produced by women) could be enhanced by available data in chapter 12 and share the work of USAID, DCHA and the Office of the Global Food Security Coordinator. (Place such data between lines 37 and 46 on page 6 under.12.2.1 Impacts on Material Aspects of Livelihood Security). (UNITED STATES OF AMERICA)
41	12	0	0	0	0	Although Human Health is the topic of Chapter 11, there needs to be more reference to health concerns in the Human Security chapter since it represents a threat to the vital core of lives (the definition of human security). (UNITED STATES OF AMERICA)
42	12	0	0	0	0	another reference of importance for the topic: UNEP (2011): Livelihood Security - Climate Change, Migration and Conflict in the Sahel. ISBN 978-92-807-3198-9, 108p (Zeil, Peter, Center for Geoinformatics Z GIS Salzburg University)
43	12	0	0	0	0	Both chapters 12 and 19 cover the issue of climate change and conflict, however in very different and inconsistent ways. Chapter 12 provides a more balanced account of the literature and the range of positions expressed there. The assessment of the literature in Chapter 19 is more unbalanced and rests much on two unpublished articles by one of the contributing authors that takes a very determined position. The IPCC should provide a fair account of the different positions expressed in the peer-reviewed literature. The division on this subject in the research community has been made explicit in a recent commentary in Nature (Solow, 2013, Nature 497: 179). Chapter 19 does not refer to primary articles that are more cautious about the climate-conflict link which have been also quoted in the mentioned Nature commentary. (Scheffran, Jürgen, University of Hamburg)

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44	12	0	0	0	0	A theme which could be drawn out more strongly is that concerning the lack of livelihoods options and choices as part of the climate change and human security relationship - in addition to the two factors considered in 12.2.1 and elsewhere throughout the chapter, including Section 12.5 and Box 12-5. The case study of relevance here is that of Darfur which shows how the Janjaweed rebel group was essentially a nomadic pastoralist group who had run out of livelihood options and choices due to a range of factors associated with environmental degradation, drought, policy failure, and the breakdown of traditional authorities responsible for managing and mitigating resource-use conflicts. The options to engage in violence instead - as a source of livelihood - is an important example of what vulnerability means in practice. The Tufts research by Helen Young on Livelihoods, Power and Choice is the key reference here: link attached. Covering in a little more detail the security aspects, how and why certain groups engaged in violence, and how the breakdown of traditional institutions played into the local-level conflicts over increasingly scarce resources - certainly associated with drought but potentially also changing climatic patterns, would be worthy of further examination. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
45	12	0	0	0	0	The remainder of Section 12.5 is, however, dealt with comprehensively, and presents a strong body of evidence to support the arguments made. The examination of the risks associated with climate mitigation strategies is particularly useful, as is the subsequent assessment of violent conflict and its implications for vulnerability to climate change. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
46	12	0	0	0	0	The conclusion of the chapter suggests that the evidence regarding the effects of climate change on human security will be of diminishing value due to the rate of change in levels of warming. This is surely incomplete. The authors should go further in making recommendations on what the response of the international community, including the research community, should be to this particular dilemma. For example, is there a need for further research on this relationship, including the issue of causality in the relationship between climate change and conflict? Does a stronger awareness of climate change need to be built into conflict prevention strategies? Should there be stronger cross-cutting climate change/conflict sensitivity approaches adopted in policy, research and practice? A more robust conclusion would only strengthen what is already an excellent and compelling piece of work. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
47	12	0	0	0	0	The chapter lacks in clarity and quality in several places e.g. in comparison with chapters 9, 13 and 20\nillustration, figures mainly good but e.g. 12-1 needs further work (Halonen, Mikko, Gaia Consulting Oy)
48	12	0	0	0	0	The chapter is repetitive ("This chapter... this chapter...this chapter...". Definitions could be streamlined and placed more systematically in the beginnin of the chapter. (Halonen, Mikko, Gaia Consulting Oy)
49	12	0	0	0	0	Needs a strategic overall approach, to mature and reviews in parallel with other chapters (Halonen, Mikko, Gaia Consulting Oy)
50	12	0	0	0	0	Exec summary: On point of migration, discrepancy in line 14 (page 2) where migration is noted as „“, and lines 49-53 (page 2) and lines 1-2 (page 3) that suggest that migration is widely used and often effective strategy to maintain livelihoods in response to social and environmental changes. Rainfalls research helps resolve this discrepancy with evidence that suggests households with certain characteristics of „resilience“ use migraiton in ways that reduce their sensitivty to climate stressors (like changes in rainfall variability), while households with „vulnerable“ characteristics use migration in ways that can erode their basis for human security (see special journal edition by Afifi and Warner, Climate Policy 2013 forthcoming) (Warner, Koko, United Nations University - Institute for Environment and Human Security)
51	12	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 12 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. (Chatteriee, Monalisa, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
52	12	0	0	0	0	1) Overall -- The chapter team has developed a very robust second-order draft. In the final draft, the chapter team is encouraged to continue prioritizing compact and rigorous assessment, accessible text, and clear communication of findings. All sections should be further tightened and condensed as much as possible. Opportunities for incorporating further figures should be considered as may be suggested by reviewers. (Mach, Katharine, IPCC WGII TSU)
53	12	0	0	0	0	2) Italicizing calibrated uncertainty language -- All calibrated uncertainty language used should be italicized for clarity, including summary terms for evidence and agreement, levels of confidence, and likelihood terms. (Mach, Katharine, IPCC WGII TSU)
54	12	0	0	0	0	3) Coordination across Working Group II -- In developing the final draft of the chapter, the author team should continue to ensure coordinated assessment, both in the chapter text and at the level of key findings. Cross-references to other chapters should indicate the relevant *sections* of the other chapters wherever possible and appropriate, in place of generic references to entire chapters. The chapter team is strongly encouraged to review assessment of migration and conflict especially in other chapters, such as the regional chapters, to ensure assessment across the report is consistent with the key findings of chapter 12. (Mach, Katharine, IPCC WGII TSU)
55	12	0	0	0	0	4) Harmonization with the Working Group I contribution to the AR5 -- In developing the final draft, the chapter team should also ensure that 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 as appropriate. (Mach, Katharine, IPCC WGII TSU)
56	12	0	0	0	0	5) Report release -- The chapter team should be aware that the final drafts of the chapters will be posted publicly at the time of the SPM approval, before final copyediting has occurred. Thus, the chapter team is encouraged to continue its careful attention to refined syntax and perfected referencing. (Mach, Katharine, IPCC WGII TSU)
57	12	0	0	0	0	6) Characterization of future risks -- In characterizing future risks related to human security, to the degree appropriate the chapter team should indicate the extent to which risks (or key risks) can be reduced through mitigation, adaptation, development, poverty reduction, etc. That is, is it possible to indicate how risks may increase as the level of climate change increases or, potentially, to indicate the relative importance of changes in mean conditions, as compared to changes in extreme events, as compared to potential non-linear changes associated with biome shifts or tipping points? And then, how much can these risks be reduced through adaptation or development, in the near-term and long-term? How are factors or stressors that multiply risks relevant in this context? As supported by its assessment of the literature, the author team should consider communicating risks for the era of climate responsibility (the next few decades, for which projected temperatures do not vary substantially across socioeconomic/climate scenarios) and for the era of climate options (the 2nd half of the 21st century and beyond). 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)
58	12	0	0	0	0	7) Informing the summary products -- To support robust and insightful summary products for the report, the chapter team is encouraged to maximize nuance and traceability in its key findings, continuing to use calibrated uncertainty language effectively. In addition to nuanced characterization of future risks (see the previous comment), the chapter team is encouraged to consider themes emerging across chapters, indicating for example how extreme events have demonstrated adaptation deficits and vulnerabilities to date and may relate to future risks, how limits to adaptation may be relevant in the context of this chapter, how multidimensional inequality is relevant in the context of climate change, how adaptation experience has been seen to date, and how interactions among mitigation, adaptation, and sustainable development may occur. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
59	12	0	0	0	0	GENERAL COMMENTS: I congratulate the author team for a well-written and informative SOD. Please see my detailed comments for suggestions related to specificity of ES findings and traceable accounts, refining figures and tables, calibrated uncertainty language, and various specific clarifications. I have one general comment. In both the executive summary and the text, please take care to differentiate statements about climate variability and climate change, or where both are relevant. For example, if a statement asserts sensitivity/vulnerability to climate change, it is not always clear to what extent this is a statement about impacts of changes in climate conditions that have already been observed, impacts that are anticipated based on identified sensitivity/vulnerability to climate variability, and/or specific projections of future impacts of climate change. It would be useful to communicate these nuances to the extent possible based on the available evidence, and I have tried to point out specific places where this is relevant in my comments. (Mastrandrea, Michael, IPCC WGII TSU)
60	12	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 12, this includes presentation of observed impacts and vulnerabilities in section A.i, principles for effective adaptation in section B.ii, and sectoral risks in section C.i and Box SPM.5. 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 12 and other chapters at LAM4? (Mastrandrea, Michael, IPCC WGII TSU)
61	12	0	0	0	0	This one is really pushing it. You make no case at all (Gray, Vincent, Climate Consultant)
62	12	1	1	25	37	The big question is "Climate Change, how many death?" I guess tens of millions (good confidence) to hundreds of millions (medium confidence). It will be good to make this assessment with flood, drought, etc.... It is however too late for the SOD, unless you send a special email to all reviewers ? (Pecheux, Martin, Institut des Foraminifères Symbiotiques)
63	12	1	11	1	11	The chosen contributing authors further reinforce the regional dominance among the CLAs and Las. The regions where the impact of climate change on human security may be the greatest, e.g. the expertise of scholars from Sub-Saharan Africa, South Asia, China and in the Arab World is still totally lacking. (Brauch, Hans Guenter, Free University of Berlin)
64	12	2	11	0	0	The executive summary of this chapter, which is fragmentary, fails to reflect what the chapter drives at. It is suggested to reformulate and reinforce it. (CHINA)
65	12	2	11	0	0	Executive Summary -- All calibrated uncertainty language used within the executive summary should be italicized. Additionally, in revising key findings, I would encourage the author team to consider nuanced characterization of future risks and themes relevant to the summary products, as supported by its assessment of the literature. Please see my overall comments on the chapter for these topics. (Mach, Katharine, IPCC WGII TSU)
66	12	2	11	3	28	The Executive Summary has confidence statements that are not supported in the underlying text. Add confidence statements to underlying text and ensure consistency with the executive summary and summary for policy makers confidence statements. (UNITED STATES OF AMERICA)
67	12	2	13	2	13	Climate change threatens human security, because it...suggest adding: threatens human health, weakens ecological systems on which humans depend, decreases food security, and increases costs to individuals, communities, and nations.\n (UNITED STATES OF AMERICA)
68	12	2	13	2	15	The correlation between climate change and its threat to human security is overstated. Stated in its current form, it could be interpreted that climate change directly causes issues of human security, which is not entirely consistent with the rest of the chapter that implies that climate change exacerbates or multiplies existing and other certain threats. (AUSTRALIA)
69	12	2	13	2	20	Add e) technology may not be able to protect people in place (Bronen, Robin, University of Alaska)

#	Ch	From Page	From Line	To Page	To Line	Comment
70	12	2	13	2	41	Lines 13-15 state that "climate change threatens human security, because it [...] increases migration that people would have rather avoided [...] "high agreement, robust evidence)". However, in the lines 40-41, the impact of climate change on "migration that comprises human security" is stated to be supported by medium agreement and medium evidence only. In my eyes, there is a contradiction between both parts. (Ide, Tobias, Research Group Climate Change and Security)
71	12	2	15	0	0	if this whole paragraph serves as summary of the chapter, then 'the high agreement, robust evidence' statements do not really reflect the cumulative assessment of the different sections of the chapter. (Koubi, Vally, University of Bern)
72	12	2	15	0	0	Refer to 'robust evidence'. This first point is summarising the findings in the chapter. Given that some of the evidence is medium and in some cases contested, should it be called 'robust'? For example on page 12 the point is made that the issue of causality is a difficult one to establish. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
73	12	2	15	2	15	In view of the very ambiguous empirical evidence the qualification as high agreement and robust evidence is too strong. it should be moderate agreement and moderately robust evidence (Bernauer, Thomas, ETH Zurich)
74	12	2	15	2	15	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
75	12	2	15	2	16	The second sentence is the stronger point based on the specifics of the chapter, and should be the bolded one, rather than areas where the underlying chapter does not present quite such a unified view. (UNITED STATES OF AMERICA)
76	12	2	18	0	0	I would frame this whole section less deterministically, e.g., "because it may undermine..." (Bernauer, Thomas, ETH Zurich)
77	12	2	22	2	23	This statement links culture to knowledge and identity. Could place attachment and its relationship with identity be mentioned as a way to explain some barriers or facilitators to adaptation? What is the effect on people and their human security when they are displaced from their homes and places they feel they belong to? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
78	12	2	22	2	23	The phrasing of this finding makes it unclear to what extent this is a statement about impacts that have already been observed, impacts that are expected based on identified sensitivity/vulnerability to climate variability, and/or specific projections of future impacts. The nonbold sentences are forward-looking, but section 12.3 also contains discussion about observed effects. To the extent supported by the literature, it would be very useful to present information both about changes to date and future risks. In addition, section 12.3.1 mentions "high confidence" associated with similar statements. How does this intersect with the agreement/evidence statement given here? (Mastrandrea, Michael, IPCC WGII TSU)
79	12	2	22	2	38	The executive summary on culture is a bit ambiguous and not too clear to the reader. However, it becomes clearer what is meant in the specific sections on culture (12.3). There is also some overlap with the next paragraph on "Traditional and indigenous forms of knowledge..." with regard to the term "traditional forms of knowledge". Since both paragraphs of the executive summary deal with 12.3, I would recommend merging the two or if not, at least making the first paragraph starting with "Climate change affects cultures..." more concise and to the point. (Webersik, Christian, University of Agder)
80	12	2	22	2	41	For the key findings in bold on lines 22-23 and 40-41, the chapter team should consider if it is possible to make more nuanced statements about the impacts of climate change on culture and migration. (Mach, Katharine, IPCC WGII TSU)
81	12	2	23	0	0	keep order of agreement-evidence statements consistent for each entry? (Ross, Helen, The University of Queensland)
82	12	2	23	2	23	(medium evidence, high agreement) should read "(high agreement, medium evidence)" for the sake of consistency (Webersik, Christian, University of Agder)

#	Ch	From Page	From Line	To Page	To Line	Comment
83	12	2	23	2	23	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
84	12	2	23	2	23	Change order of items in brackets to be in line with similar text elsewhere (high agreement, medium evidence). (Halonen, Mikko, Gaia Consulting Oy)
85	12	2	26	2	26	Please move the line of sight to the end of the paragraph for clarity. (Mastrandrea, Michael, IPCC WGII TSU)
86	12	2	28	0	0	How maladaptive defined? I think this is the only place it is mentioned. Is it bad forms of adaptation, not adapting or when adaptive responses end up exacerbating impacts on human security? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
87	12	2	31	2	31	How do you distinguish between traditional and indigenous forms of knowledge from traditional beliefs without any scientific value ? Many people in France believe that their astrological sign influences their character and read their horoscope. Would you consider creationism as a form of traditional knowledge? (Petit, Michel , CGIET rue de Bercy)
88	12	2	31	2	32	Traditional and indigenous forms of knowledge are a major resource for adapting to climate change except when the changes exceed the knowledge repertoire. This statement seems almost tautological in its present form, which obviously explains the high agreement and robust evidence. It's not quite as tautological as saying that knowledge is adequate unless it's inadequate, but it goes in that direction. When the knowledge repertoire "exceeds" the changes (I guess that means provides sufficient equipment to face the changes), then it's pretty intuitive to conclude that it will be a resource for adaptation. But the real question is of course whether and under what circumstances traditional and indigenous forms of knowledge provide sufficient equipment to face the changes, and there's much less consensus on and much more mixed evidence for that. In short, the statement as you currently formulate it "begs the question" and it may not be worth having in the first place unless you give it some less tautological form. (Friedrichs, Joerg, University of Oxford)
89	12	2	31	2	32	See comment on p.8, l.43-46, is there an argument for considering traditional knowledge and how it relates to perceptions of change and the future. If the changes exceed the knowledge repertoire then this would matter only if people perceived it to be so since. If not it still can influence behaviours and actions related to adaptation. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
90	12	2	31	2	34	There is increasing evidence against the argument that local and traditional knowledge loses its utility for adaptation once change bypasses the knowledge repertoire This frequent assumption is flawed because it focuses upon knowledge as a fixed set of information, rather than considering the dynamic capacity of knowledge holders to face novel challenges and nevertheless find ways to adapt. Indeed, many indigenous people pride themselves on their ability to overcome new and as yet unencountered challenges (Fienup-Riordan and Rearden 2010). For Inuit living in a rapidly changing Arctic, it is not the knowledge repertoire that sets the limits of adaptation. The transmission of core cultural attitudes and values such as patience, respect, solidarity, endurance, attentiveness, and inventiveness in the face of novel challenges, can expand adaptive capacity well beyond the existing knowledge repertoire (Ford et al. 2007; Fienup-Riordan and Rearden 2010). Fienup-Riordan, A. and Rearden, A. 2010. The ice is always changing: Yup'ik understandings of sea ice, past and present. In: I. Krupnik et al. (eds.) SIKU: Knowing Our Ice: Documenting Inuit Sea Ice Knowledge and Use. London, Springer, pp. 303–328; Ford, J.D., Pearce, T., Smit, B., Wandel, J., Allurut, M., Shappa, K., Ittusujurat, H., and Qrunnut, K. 2007. Reducing vulnerability to climate change in the Arctic: The case of Nunavut, Canada. Arctic, 60(2): 150–66. (Nakashima, Douglas, UNESCO)

#	Ch	From Page	From Line	To Page	To Line	Comment
91	12	2	31	2	34	THE DANGER OF THIS LINE OF ARGUMENT (for which I contest that there is robust evidence), is that it encourages decision-makers to disregard indigenous knowledge and indigenous knowledge holders. It justifies reliance on adaptation measures that are completely external to the communities, because 'change is beyond their current knowledge repertoire'. Yet in actual fact, adaptation measures to changes beyond lived-experience may better align with local community livelihoods, concerns and aspirations, if they are nevertheless based upon and inspired from traditional and indigenous knowledge and practice. (Nakashima, Douglas, UNESCO)
92	12	2	32	0	0	Same point as in 1. - Refer to 'robust evidence'. This first point is summarising the findings in the chapter. Given that some of the evidence is medium and in some cases contested, should is be called 'robust'? For example on page 12 the point is made that the issue of causality is a difficult one to establish. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
93	12	2	32	2	32	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
94	12	2	32	2	32	Is adaptive capacity also a factor for indigenous and traditional communities, separate from knowledge? (UNITED STATES OF AMERICA)
95	12	2	33	2	35	If the entire paragraph is supported by section 12.3, including the line of sight at the end of the paragraph is sufficient. (Mastrandrea, Michael, IPCC WGII TSU)
96	12	2	35	2	35	Insert comma after 'Currently'. (Burt, Peter, University of Greenwich)
97	12	2	36	0	0	could consider adding (here and in body).... In many cases Indigenous peoples' cultures and knowledge bases are also threatened by globalisation patterns. (Ross, Helen, The University of Queensland)
98	12	2	36	2	36	Mismatch of singular and plural tenses: change 'is' to 'are'. (Burt, Peter, University of Greenwich)
99	12	2	37	2	37	Mutual : who are the partners involved ? Scientists should check the scientific value of local traditions but cannot accept all local beliefs as valid scientific results. (Petit, Michel , CGIET rue de Bercy)
100	12	2	40	2	43	The strongest aspect of these statements is the relationship between extreme events, climate, and migration, so that should be the lead, rather than a statement that is not entirely backed up by data/literature as demonstrated by the underlying section. A more explicit link to the SREX would be worthwhile here, since, while the migration and extreme events piece is quite evident, the SREX demonstrated that climate change is one of the factors that drives vulnerability and impacts of extremes, which is an important point to keep in mind when summarizing this information. (UNITED STATES OF AMERICA)
101	12	2	40	2	47	You omit retirement migration. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
102	12	2	40	2	47	Differentiate between individual migration and community relocation/resettlement (Bronen, Robin, University of Alaska)
103	12	2	40	2	47	Section 12.4.1 is also relevant to this paragraph, specifically lines 42-43. (Mastrandrea, Michael, IPCC WGII TSU)
104	12	2	41	2	41	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
105	12	2	43	2	43	it would be good to distinguish short and long term displacement and short and long term climate impacts (Bernauer, Thomas, ETH Zurich)
106	12	2	43	2	51	It is not completely clear whether the statements regarding migration are consistent between these two ES paragraphs. Lines 43-45 state that there is evidence that many vulnerable groups do not have resources to migrate to avoid some extreme events, while lines 50-51 state that there is evidence that migration and mobility are adaptation strategies in all regions of the world that experience climate variability. Please clarify the distinctions being made and how these statements fit together. (Mastrandrea, Michael, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
107	12	2	44	2	46	For the 2 sentences beginning with "there is evidence," the chapter team should consider presenting calibrated uncertainty language within parentheses at the end of the sentences in place of the phrases or, alternatively, simply deleting these phrases and instead beginning the sentences with the text that follows. (Mach, Katharine, IPCC WGII TSU)
108	12	2	45	2	46	The sentence states that loss of permafrost is causing migration and resettlement. More accurately it is decreased soil stability due to loss of permafrost that causes migration and resettlement. (Rosales, Jon, St. Lawrence University)
109	12	2	46	0	47	Environmental impact of displaced communities - renewed challenge to human security; rference for evidence see below (Zeil, Peter, Center for Geoinformatics Z GIS Salzburg University)
110	12	2	47	0	0	Also choice of destination areas may be uneven, with high incidence of climate refugees overloading particular areas with limited capacity to absorb a rapidly growing population. (Ross, Helen, The University of Queensland)
111	12	2	49	0	0	what does „effective“ mean? (Warner, Koko, United Nations University - Institute for Environment and Human Security)
112	12	2	49	0	0	research suggests that mobility is employed when in situ livelihoods come under pressure form climatic and other stressors (see e.g. Jonnson 2009, Jäger and Afifi 2010, Baneerjee 2011, Warner et al 2012). Clarify sentence by rewording, or evaluate whether the claim is consistent with the bulk of relevant and field-based literature on the topic. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
113	12	2	49	2	50	It is unclear how the medium evidence in the bold sentence interacts with the robust evidence in the first nonbold sentence. Please clarify. (Mastrandrea, Michael, IPCC WGII TSU)
114	12	2	49	3	2	Section 12.4.3 does not exist. Sections 12.4.1 and 12.4.2 are relevant to this paragraph, and should be included in the line of sight. (Mastrandrea, Michael, IPCC WGII TSU)
115	12	2	50	0	0	If there is first "medium evidence," why does the first sentence start with "robust evidence?" (Bernauer, Thomas, ETH Zurich)
116	12	2	50	2	50	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
117	12	2	50	2	50	The pairing of "medium evidence" in the bold key finding and "robust evidence" in the sentence that follows should be clarified, as the distinctions leading to the differing assignments may not be completely clear to the reader. (Mach, Katharine, IPCC WGII TSU)
118	12	2	50	2	51	claims „there is robust evidence“ that migration and mobility are adaptation strategies. However, literature such as that just mentioned seem to suggest that while households and communities employ mobility in an ATTEMPT to manage climatic risk, this ATTEMPT does not equate SUCCESS in adaptation. Studies like Rainfalls and others find that some are able to use migration (but such households already bear characteristics that would make them more likely to use migration successfully, e.g. Better education, livelihood diversification, better access to social networks, access to formal and informal institutions). The Rainfalls findings, EACH-FOR, and Foresight also seem to suggest that households and communities in tenuous situations vis-a-vis climate stressors are often WORSE off in their attempt to move, and in some cases populations have characteristics of „trapped populations“ (evidence of this is found in Milan, A. & S. Ruano (2013) Rainfall variability, food insecurity, migration and trapped populations in Cabricán, Guatemala, Climate and Development, Vol. x, No. x, pp. xx-xx). More nuance or correction is needed on this point, as it seems to contradict the previous point in the executive summary (lines 40-47). (Warner, Koko, United Nations University - Institute for Environment and Human Security)
119	12	2	53	2	53	In place of "some evidence" it would be preferable to use summary terms for evidence (and agreement). (Mach, Katharine, IPCC WGII TSU)
120	12	3	1	3	1	Delete space between security and fullstop (Webersik, Christian, University of Agder)

#	Ch	From Page	From Line	To Page	To Line	Comment
121	12	3	1	3	2	claim that „implementation of planned resettlement show that legitimate and inclusive planning processes help alleviate the conflict and insecurity that individuals and communities may experience.“ while this reflects one of Cernea’s 8 lessons of development resettlement, the wording can be misleading—IF processes are inclusive they can contribute. However, EVIDENCE suggests that participatory processes and reducing insecurity have not very often been the case, at least in the case of development related planned relocation (Ferris, Oliver-Smith). Please carefully consider the evidence and ensure that the wording in these lines reflects evidence rather than a normative („could be“, „should be“) which could be misinterpreted accidentally as evidence. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
122	12	3	2	0	0	But see comment on p. 2, line 47. Large numbers may gravitate to particular host areas, making planning and absorption difficult. For instance Pacific Islander people in a low-income city have claimed in my research that climate changes in the Pacific will bring large further numbers of Pacific Islanders to this particular city, since housing is cheap, industrial jobs available and they already have countrymen there. (Ross, Helen, The University of Queensland)
123	12	3	4	3	5	Is there any specific reason based on explicit research to refer to “civil wars”\nWould it be useful/possible to spell it out even more clearly ? (Halonen, Mikko, Gaia Consulting Oy)
124	12	3	4	3	8	Where the phrases "sensitive to climate change" are used on these lines, the finding being asserted may not be completely clear. For example, is the chapter team viewing "sensitivity to climate and climate variability" as equivalent to "sensitivity to climate change"? It seems that distinctions between the sensitivities could perhaps be clarified if the underlying literature has demonstrated sensitivity to climate and climate variability more than sensitivity to climate change. (Mach, Katharine, IPCC WGII TSU)
125	12	3	4	3	13	To me this does not cover inter-country violent conflict or warfare. If we already have border conflicts over water resources (e.g. Israel, I believe), we can expect climate effects on water to make these worse. (Line 26 below picks up the point though, and p. 23 elaborates a similar point). (Ross, Helen, The University of Queensland)
126	12	3	4	3	13	Please be careful to distinguish climate variability and climate change in this description, as both are mentioned either alone or together in the paragraph. Are the factors mentioned sensitive to climate conditions in general, or to climate change specifically, for example? Also, please provide line of sight for the paragraph (12.5.1 and 12.5.2). (Mastrandrea, Michael, IPCC WGII TSU)
127	12	3	5	3	5	it makes no sense to lump all sorts of violent conflict together. The evidence for the claim that climate change has any direct or indirect impact on the probability of civil war is extremely thin - I'd say low confidence, no robust results. The evidence that climate change may have an effect on smaller scale forms of violence is a bit more robust, though at the maximum moderate (Bernauer, Thomas, ETH Zurich)
128	12	3	5	3	5	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
129	12	3	5	3	6	I guess hardly any one claims a direct effect of climate change on violence. There might be a correlation and even one or several causal links, but the link is only indirect and always mediated by natural (e.g. water availability, ecosystem changes, reduced agricultural production etc.) and social factors (e.g. grievances, weakening states, lower recruitment costs for fighters etc.). (Ide, Tobias, Research Group Climate Change and Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
130	12	3	5	3	6	It is unclear why the authors are erecting this particular strawman: "The evidence on the direct effect of climate change and variability on violence is contested." Most, if not all, of the literature on climate change and violence/conflict does not concern itself with exploring such a "direct effect". In fact, most of the literature focuses on exploring the indirect effects of climate change on violence, as well as correlations between climate change and conflict. Suggest that the authors refer to the recent special issue of the Journal of Peace Research "Climate Change and Conflict," which demonstrates that climate change can be one factor in increasing the likelihood of different forms of violence, and reflect that much of the literature places climate change in the context of a picture of very complex causality including multiple variables/drivers. It is not constructive, or accurate, to paint a picture of some hotly contested assertion that "climate change directly causes violence." (UNITED STATES OF AMERICA)
131	12	3	7	3	7	What are inconsistent state institutions? (Brauch, Hans Guenter, Free University of Berlin)
132	12	3	7	3	7	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
133	12	3	7	3	9	not necessarily, it all depends on general adaptation capacity (Bernauer, Thomas, ETH Zurich)
134	12	3	8	3	9	The example of Hurliman and Dolnicar (2011) needs a bit more information in order to provide greater clarity as to key findings. (McMichael, Celia, La Trobe University)
135	12	3	8	3	9	this sentence hardly makes any sense. I cannot see how climate change policy responses associated with changing property rights to land, water and resources can increase the risk of conflict. The existing theoretical literature on institutions emphasizes that an imperfect institutional framework, usually understood as the lack of enforcement and insecure property rights, is a necessary condition for the existence of conflict. In other words, conflict is more probable when less secure property rights exist and enforcement of law is scarce (Skaperdas 2003, 1992; Garfinkel 1994). Consequently, it should be climate change policy responses associated with imperfect or less secure property rights to land, water and resources can increase the risk of conflict.\nSkaperdas, Stergios (2003) "Restraining the genuine Homo Economicus: Why the economy cannot be divorced from its governance," Economics and Politics 15(2): 135-162.\nSkaperdas, Stergios (1992) "Cooperation, conflict, and power in the absence of property rights," American Economic Review 82(4): 720-739\nGarfinkel, M.R. (1994) "Domestic politics and international conflict," American Economic Review 84(5): 1292-1309.\n(Koubi, Vally, University of Bern)
136	12	3	8	3	9	CC policy responses... can increase the risk of violent conflict"\nBUT also, if done properly, can serve to reduce tensions, contribute to peace building! Some, but limited research available on this, also noted in the actual text => this aspect could also be noted in the Executive Summary ? (Halonen, Mikko, Gaia Consulting Oy)
137	12	3	9	0	0	This whole paragraph hardly makes sense in light of the apparently robust evidence pointed to in the first paragraph here (Bernauer, Thomas, ETH Zurich)
138	12	3	10	3	13	It are consistent respectively consolidated institutions (no matter whether they are democratic or autocratic) rather than merely democratic institutions that reduce the risk for (climate change-related) violent conflict. From a normative perspective, I would also like to argue for consolidated democratic institutions, but the literature points to consistency rather than democracy as the relevant factor. See, for instance:\nHegre, Håvard et al. (2001): Toward a Democratic Civil Peace? In: American Political Science Review 95(1), 33-48.\nDixon, Jeffrey (2009): What Causes Civil War? In: International Studies Review 11(4), 707-735.\nHegre, Håvard/Sambanis, Nicholas (2006): Sensitivity Ananylsis of Empirical Results on Civil War Onset. In: Journal of Conflict Resolution 50(4), 508-535. (Ide, Tobias, Research Group Climate Change and Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
139	12	3	10	3	13	You argue for "structures that protect property rights" as factor reducing the risk for violent conflict. As far as I know, precisely the attempt to enforce property rights is a driver of (also violent) conflict in contexts where the 'western' concept of property is not widely acknowledged. See, for instance, the literature on land grabbing, land privatization and biofuels/monoculture expansion in Latin Americam, Sub-Saharan Africa or Southeast Asia. Especially in the executive summary, the IPCC WGII should be very careful when dealing with property rights, since they can (dependent on how, by whom and in which context they are introduced/strenghtend) aggravate or reduce the risk for violent conflict. (Ide, Tobias, Research Group Climate Change and Security)
140	12	3	11	3	11	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
141	12	3	12	0	0	not clear why proiecting property rights is singled out among all the functions that "robust institutional structures" must perform to minimize risk of conflict; moreover, adjustments in property rights annrangements are often an effective adaptation to resource stress (Conca, Ken, American University)
142	12	3	12	0	0	The text says that "democratic institutions" will reduce the risk that cliamte variability and extremes will lead to violence. While I sympathize with tha proposotion, I think it needs to be qualified in view of the evidence: Interstae conflict: Yes for pairs of democratic states, no for monadic data; internal wars: some evidence for longer term democracies, no for emerging democracies (Brzoska, Michael, University of Hamburg)
143	12	3	13	3	13	The statement that certain elements reduce the risk that climate variability and extremes lead to violence implies too direct a connection between climate change and violence, when it in fact exacerbates or multiplies other more direct factors leading to violence. (AUSTRALIA)
144	12	3	15	3	16	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
145	12	3	16	0	0	why only medium evidence? (Koubi, Vally, University of Bern)
146	12	3	16	3	16	why only medium evidence? (Bernauer, Thomas, ETH Zurich)
147	12	3	16	3	16	In place of "modest," "medium" should be used for consistency with the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
148	12	3	17	3	17	Delete comma after 'capital'. (Burt, Peter, University of Greenwich)
149	12	3	18	0	0	drives or exacerbates? (Ross, Helen, The University of Queensland)
150	12	3	18	0	0	It is slightly misleading to say that conflict "drives" vulnerability to climate change impacts. Vulnerability is a combination of exposure, sensitivity and adaptive capacity - some or all of which may be undermined by conflict. For the sake of accuracy, change the sentence to read "...infer that conflict exacerbates vulnerability to climate change impacts". (UNITED STATES OF AMERICA)
151	12	3	18	3	18	The line of sight should be 12.5.3 rather than 12.5.2. (Mastrandrea, Michael, IPCC WGII TSU)
152	12	3	20	3	21	Climate change will lead to new challenges to states and will shape both conditions of security and national security policies Again there are not only states but also international organizations (including those in the security area, like OAS,.OSCE. AU, Arab league and miliary alliances like NATO). There is no reference to "human" and "international security". This narrowing of security to national security policies is not representative of the global scientific debate that focuses significantly on international and human security. (see Brauch 2009; Scheffran et al. 2012a). (Brauch, Hans Guenter, Free University of Berlin)
153	12	3	20	3	21	It would be worth considering mention of rate of change as well as magnitude of change here, as this is also discussed in section 12.6 (and 12.7). (Mastrandrea, Michael, IPCC WGII TSU)
154	12	3	20	3	28	Add to end of first sentenceprotection in place may not be possible because of lack of governance or financial mechanisms (Bronen, Robin, University of Alaska)

#	Ch	From Page	From Line	To Page	To Line	Comment
155	12	3	21	3	21	For consistency with other chapters, 'statistical' text in brackets should be in italics and not bold. (Burt, Peter, University of Greenwich)
156	12	3	22	3	22	Delete commas after 'events' and 'water'. (Burt, Peter, University of Greenwich)
157	12	3	23	3	24	Section 12.5.4 is not directly relevant to this statement, but could support the statement on lines 26-27. 12.6.2 is more relevant to this statement. (Mastrandrea, Michael, IPCC WGII TSU)
158	12	3	24	3	24	Delete comma after 'States'. (Burt, Peter, University of Greenwich)
159	12	3	26	0	0	needs to include international institutions. (Ross, Helen, The University of Queensland)
160	12	3	26	3	26	For this sentence beginning with "there is evidence," the chapter team should consider presenting calibrated uncertainty language within parentheses at the end of the sentence in place of the phrase or, alternatively, simply deleting the phrase and instead beginning the sentence with the text that follows. (Mach, Katharine, IPCC WGII TSU)
161	12	3	27	0	0	This statement elides national security and human security. IF the point is that national-security dynamics will affect human security, that causal link should be clarified and unpacked (Conca, Ken, American University)
162	12	3	31	0	0	Section 12.1. Given the visibility of the opening section, it should be tightened as much as possible in the preparation of the final draft of the chapter. (Mach, Katharine, IPCC WGII TSU)
163	12	3	31	4	22	The subsection specifying the definition and scope of human security should come before the section on human security in previous reports. In other words, the order of subsections 12.1.1 and 12.1.2 should be reversed. (Friedrichs, Joerg, University of Oxford)
164	12	3	36	3	36	Delete comma after 'culture'. (Burt, Peter, University of Greenwich)
165	12	3	36	3	39	In addition to WGIIAR4 calling for a systemic assessment of the relationship between climate change and human security in the next AR, the Social Development Department of the World Bank also made this request in their 2008 report "Implications of Climate Change for Armed Conflict", available at http://www-esd.worldbank.org/sdvpubs/index.cfm?Page=Search&DocID=388&sr=1 . This was one of six recommendations for future development and peacebuilding efforts: "Include security issues in the next round of IPCC assessments. In contrast to the natural science of climate change, the social implications lack solid research foundation and are dealt with by the IPCC only in scattered comments. If the security implications of climate change are to be taken seriously in the policy debate, the IPCC should take the lead in investigating them systematically.(page 3 of World Bank report). Suggest adding sentence that articulates the need for methods development in this field. (UNITED STATES OF AMERICA)
166	12	3	37	3	37	Capital 'C' required for 'chapter' (in this context it is a proper noun and is also in keeping with other usage in the document, eg line 38). (Burt, Peter, University of Greenwich)
167	12	3	43	0	0	Please check in the original whether chaoter 11 of WGII AR4 refers to national security. This chapter refers 23 times to security but only once to national security. This does not represent the security discussion in the chapter on Australia and New Zealand. (Brauch, Hans Guenter, Free University of Berlin)
168	12	3	47	3	48	'et al.' should be in italics, and references should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
169	12	3	48	3	51	For clarity, revise this sentence to read "livelihoods; and the impact of context-specific realities across global regions are examined systematically in Chapters 11, 13" (UNITED STATES OF AMERICA)
170	12	3	48	3	51	The specific dimensions of human security mentioned as being cross-referenced are mentioned, but not sufficiently explored or synthesized in terms of their impact on human security. (UNITED STATES OF AMERICA)
171	12	3	50	3	50	Capital 'C' required for 'chapter' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
172	12	4	3	4	9	Reference for this first paragraph would be good. What is this definition of human security based on? It incorporates well-being dimensions in the concept. Perhaps it would be useful to highlight what dimensions are including in the concept of human security. I think expanding the definition a little and making it clear what is considered under this concept would be useful as the reader goes on to the rest of the report. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
173	12	4	4	4	5	vital core is not clear and could use further definition or alternative language. (UNITED STATES OF AMERICA)
174	12	4	4	4	9	This definition of “human security” is highly political. Besides, “dignity” can not be defined independently of the spatiotemporal context. The sentence “poverty, discrimination of many kinds, and extreme natural and technological disasters undermine human security” is 1°) political, 2°) parochial — discriminations are at the core of many cultures of the 500 million indigenous people referred to same chapter, 9:14, see also 10:18-19 (Defining culture as “a cumulative body of knowledge, practice and belief”.) — and 3°) conceptually arbitrary (the link between discrimination and human security is highly problematic in itself). In this context, recommended measures to fight “discrimination” and promote “human security” are oxymoronic. (Godefridi, Drieu, Cogito)
175	12	4	4	4	9	The concept of human security is underdefined and imprecise in this chapter. Because the concept is poorly specified, the subsequent organization of the chapter is a little odd. It's hard to distinguish human security from livelihoods the way the concept is defined in this chapter. The argument focuses on human security as occurring when "the vital core" of human lives is protected. It would seem that what would follow from that would be an exploration of the circumstances under which climate change could directly or indirectly threaten the "vital core" of human lives. The most important aspect of the vital core would have to be survival. Thus, an assessment or reference of the circumstances under which climate change could expose people to hazards that could kill people would be a logical point of departure. Instead, the chapter begins with a discussion of livelihoods, gender, adaptation and livelihoods, culture, indigenous peoples, traditional knowledge. (Joshua, Busby, University of Texas-Austin)
176	12	4	4	4	9	While some of these (gender, indigenous peoples) could be categories of groups especially vulnerable to death from exposure to climate-related hazards, the discussion in the first part of this chapter is fairly nebulous focusing on things less centrally important than whether or not large numbers of people might die. Focusing on the direct ways that climate hazards could kill people and affect individual human security would imply a much more robust discussion of extreme weather events and the conditions under which extreme climate hazard exposure leads to mass death. On this point, the disaster vulnerability literature, the SREX report would and should be more referenced more throughout. From here, one could then discuss the various pathways that might lead from climate change (or responses to climate change) and impacts on human security (with an emphasis first and foremost on threats to individual human lives). This emphasis on threats to human lives would intersect and follow from the previous chapter on human health but might have a less disease-specific emphasis. Chapter 11 also has less on extreme weather events than I would have expected. While Chapter 11 does have some elements on the social determinants of vulnerability, governance considerations are less central to that analysis. Thinking through the set of circumstances when large numbers of people may die as a result of exposure to climate-related hazards is discussed for example in the UNISDR reports. P. Peduzzi et al., “Assessing Global Exposure and Vulnerability Towards Natural Hazards: The Disaster Risk Index,” Nat. Hazards Earth Syst. Sci. 9, no. 4 (July 17, 2009): 1149–1159, doi:10.5194/nhess-9-1149-2009; Peduzzi et al., The Global Risk Analysis for the 2009 Global Assessment Report on Disaster Risk Reduction (Davos, Switzerland: International Disaster and Risk Conference, 2010), http://www-fourier.ujf-grenoble.fr/~mouton/Publis_HDR_applis/Peduzzi-The_Global_Risk_Analysis_for_the_2009_GAR-149.pdf . See also Joshua W. Busby et al., “Climate Change and Insecurity: Mapping Vulnerability in Africa,” International Security 37, no. 4 (2013). (Joshua, Busby, University of Texas-Austin)

#	Ch	From Page	From Line	To Page	To Line	Comment
177	12	4	7	4	8	The juxtaposition of the many processes that influence human security (markets, the state and civil society) with negative processes (such as poverty, discrimination and extreme natural disasters for example) implies that they are wholly positive. This is not always the case and the section should be reworded to reflect this ambiguity. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
178	12	4	8	4	8	Delete comma after 'kinds'. (Burt, Peter, University of Greenwich)
179	12	4	15	4	15	Change 'regional' to 'region'. (Burt, Peter, University of Greenwich)
180	12	4	15	4	15	The word "regional" should be changed with "region" \n\n (NETHERLANDS)
181	12	4	21	4	21	We suggest that the authors add a core dimension of "fragility", which is different than conflict but equally relevant to climate change related vulnerability of states and communities. (UNITED STATES OF AMERICA)
182	12	4	21	4	22	Why have these terms been selected for the systematic search? Related to some of the dimensions of human security? How are these terms related to the elements of human security in the conceptual figure 12-3? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
183	12	4	28	4	28	The chapter does not properly introduce the concept of human right and uses the term in general common-sense. For such a scholarly review it is important to be very clear on this definition. Are the authors endorsing the 1972 Stockholm Declaration of the United Nations Conference on the Human Environment. Principle 1: "Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being". Some authors have argued that we need to revise our concepts of human rights by for instance including 'human right to health' that could include a stable climate. See (Caney 2010); already on the list of references. The concept of human rights is a key concept when discussing human security. This is not sufficiently reflected in the chapter. \n\n (NETHERLANDS)
184	12	4	28	4	28	Another issue insufficiently discussed in the chapter is the temporal aspect of human security. There is a large body of literature emphasizing this aspect. It is important to note that it is more commonly referred to as 'safety' in these literature, but according to the definition of the chapter (page 4, line 4) this is exactly what has been discussed in these papers and book with respect to the security of future generations. See for instance this book as key literature on this issue: Gardiner, S. 2011. A Perfect Moral Storm: The Ethical Tragedy of Climate Change. New York: Oxford University Press. \n\n (NETHERLANDS)
185	12	4	28	4	33	Given the lack of clarity and disciplinary differences as to what 'human security' refers to, it would be useful to have a clearer definition of how human security is defined in this chapter. The predominant focus appears to be migration and conflict (and, for example, there is less of a focus on health/housing/financial markets etc) (McMichael, Celia, La Trobe University)
186	12	4	28	4	37	This discussion is quite abstract. The authors should consider adding an example of a specific case showing how climate change can put human rights at risk. Similarly, based on the last paragraph in the text box, it would be useful to the reader to see an example of how victims of human rights violations are also more vulnerable to climate change impacts. (UNITED STATES OF AMERICA)
187	12	4	30	0	0	Statement here seems to omit food and water security, as dimensions of human security and also closely allied with human rights. These seem to me very important, but may or may not belong right here. I am thinking of the survival tier of Maslow's hierarchy of needs. (Ross, Helen, The University of Queensland)
188	12	4	34	0	0	note some interest in the impacts of climate change on those with disabilities. I am aware of this from practitioners, I am not sure where it is published, if it is. (Ross, Helen, The University of Queensland)
189	12	4	35	4	32	The victims of human rights violations are also vulnerable to climate change...."\nChange into "....may also be...." ? E.g. are homosexuals in Europe more vulnerable to CC than.... (Halonen, Mikko, Gaia Consulting Oy)

#	Ch	From Page	From Line	To Page	To Line	Comment
190	12	4	35	4	37	Barnett, 2009 does not exist in the list of references\n\n (NETHERLANDS)
191	12	4	35	4	37	The concluding two lines of this box are pretty bold and do not appear to be strongly supported by the literature (i.e., one reference). The authors should consider retaining lines 28-33 of the box, but deleting lines 35-37. (UNITED STATES OF AMERICA)
192	12	4	37	5	37	Perhaps the best effort to relate natural resources, environmental change, and security is found in the UNEP report of 2009, From Conflict to Peace Building, and it should be an included reference: "Since 1990, at least 18 violent conflicts have been fueled by the exploitation of natural resources. Looking back over the past 60 years, at least 40% of all intrastate conflicts can be associated with natural resources." (UNITED STATES OF AMERICA)
193	12	4	41	4	41	"This chapter...."\nWhich chapter ? , are there several chapters here (within this chapter?) => consider e.g. referring clearly to chapter and different sections in this chapter (Halonen, Mikko, Gaia Consulting Oy)
194	12	4	41	4	42	The sentence states that 'This Chapter assesses research on how climate change may exacerbate these and other threats to human security and how these factors restrict the ability to adapt to climate change' What is meant by 'these and other threats' and 'how these factors restrict...'. This needs rewording to clarify what is being referred to. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
195	12	4	41	4	42	"these..." \nWhat does "these refer to ? Please clarify (Halonen, Mikko, Gaia Consulting Oy)
196	12	4	41	4	42	On line 41, it is not clear what "these" refers to. Similarly, it is not clear what "these factors" refers to on line 42. (Mach, Katharine, IPCC WGII TSU)
197	12	4	41	4	42	It is not clear what "these" refers to in both lines. (Mastrandrea, Michael, IPCC WGII TSU)
198	12	4	44	0	0	ditto (NOTE: Pasted here for your convenience) Statement here seems to omit food and water security, as dimensions of human security and also closely allied with human rights. These seem to me very important, nut may or may not belong right here. I am thinking of the survival tier of Maslow's hierarchy of needs. (Ross, Helen, The University of Queensland)
199	12	4	44	4	46	Low health status is identified as an underlying process that affects the capacity of individuals and groups to adapt to climate change. Indeed, public health is both a predisposing factor to and a consequence of inadequate adaptation to climate change. The sentence ended on line 46 with the word including, however, there were no further examples or explanation given. Provide additional examples, such as disease or famine, added to this sentence?\n (UNITED STATES OF AMERICA)
200	12	4	45	4	45	Very cumbersome sentence. Delete comma after 'poverty'. (Burt, Peter, University of Greenwich)
201	12	4	46	0	0	incomplete sentence (Conca, Ken, American University)
202	12	4	46	0	0	Something appears to be missing after the word "including". (UNITED STATES OF AMERICA)
203	12	4	46	4	46	Delete word "including" (Webersik, Christian, University of Agder)
204	12	4	46	4	46	"including" \nReferring to what ? (Halonen, Mikko, Gaia Consulting Oy)
205	12	4	46	4	46	This sentence should be clarified (perhaps this is simply a typo). (Mach, Katharine, IPCC WGII TSU)
206	12	4	47	4	50	The chapter reflects correctly that the literature to date has focused more heavily on identifying the negative correlations between climate change and human security but is it fair to suggest that may be a weakness of the research approach rather than a reflection of the lack of potential, even if small or limited, for climate change to influence human security in positive ways in some specific locations (e.g. improved agricultural yields in areas receiving more rain) or to serve as an entry point for peacebuilding through conflict sensitive climate change interventions in conflict-prone or fragile states? This may be a minority of cases but the authors should raise this point, or we miss the opportunity to harness resiliency rather than vulnerability. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
207	12	4	48	4	50	The sentence which starts with "But the literature..." needs a reference since the way it stands now seems to be distant from having a sound standing and looks more like a speculation. It should be explicit that what is meant by "some elements of human security"\n\n(NETHERLANDS)
208	12	4	48	4	50	This last sentence is important and should be highlighted more prominently-- while we know that climate change is occurring all over the world, we also know that human security is not threatened all over the world, which demonstrates that other drivers are work. (UNITED STATES OF AMERICA)
209	12	5	9	5	37	Box 12-2. This section could perhaps provide deeper insight into the limitations (in terms of causal pathways) that the general availability of relevant data pose. If appropriate, insight could be given into how our understanding may improve in the future with the increased data collection. In the context of migration, reference could be made to a paper by Bilsborrow & Henry (2012). Citation - Bilsborrow, R.E., S.J.F. Henry, 2012: The use of survey data to study migration-environment relationships in developing countries: alternative approaches to data collection. Popul Environ, 34 pp113-141. (Smith, Christopher, United Nations University)
210	12	5	10	0	0	Consider rewording the statement that evidence on human security/climate change is not 'coherent'. This could be misinterpreted as implying it doesn't make sense or isn't expressed clearly (i.e. it is incoherent). (McMichael, Celia, La Trobe University)
211	12	5	15	0	0	It would be more accurate to say that these different approaches strengthen the robustness of conclusions WHEN THEY CONVERGE on similar findings. (Conca, Ken, American University)
212	12	5	18	5	20	References are needed on these empirical studies bringing evidence. The following are only some examples: 1. Foresight (2011). Migration and Global Environmental Change: Final Project Report. London: Government Office for Science. 2. Jaeger, J., Fruehmann, J., Gruenberger, S. and Vag, A. (2009) Environmental Change and Forced Migration Scenarios (EACH-FOR), Synthesis report, EACH-FOR, Budapest. 3. Warner, K. & T. Afifi (2013) Where the rain falls: Evidence from 8 countries on the circumstances under which households use migration to manage the risk of rainfall variability and food insecurity, Climate and Development (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
213	12	5	18	5	20	This short paragraph does not seem necessary to me. The idea presented here has been more or less presented in the previous paragraph. The authors should consider deleting it. (UNITED STATES OF AMERICA)
214	12	5	18	5	20	References are needed on these empirical studies bringing evidence. In general Etienne Piguet (U. Neuchatel with IOM, 2012) did a bibliography on climate change and human mobility which has easily organized literature. You may also consider citing any of the Rainfalls case studies which were released in 2012 and which will be published in a special journal edition of Climate and Development in Autumn 2013 (submitted by the IPCC cutoff deadline of 31 Jan 2013). the reference to the journal is: Afifi, T. and Warner, K. (guest editors). Empirical evidence and new analytical framework for understanding the relationship between rainfall variability, food and livelihood security and human mobility. Climate and Development. 2013. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
215	12	5	19	0	0	The term anthropogenic climate change is used here. Seems to be the only place in the chapter. Is it important to make this distinction here? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
216	12	5	25	5	44	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
217	12	5	29	5	31	I think these sentences about correlation and causality are a bit ambiguous. While associations are not necessarily causal, correlations generally are a measure of a (linear) causal relationship between variables. I think it is useful to clarify what is meant by the statement that 'correlations alone do not explain causality' - do you mean they can be confounded by other variables? or that in cross-sectional research it different to attribute causal connections? (McMichael, Celia, La Trobe University)
218	12	5	29	5	31	These statements/assertions about correlation and causality need to be carefully addressed in light of how they are used in the rest of the report. The authors should remove the last sentence (lines 30-31) as it can be misused and misinterpreted. The previous two sentences provide sufficient context for how any findings on these issues should be interpreted. (UNITED STATES OF AMERICA)
219	12	5	30	5	30	I would drop the last sentence here or remove the paragraph entirely... In its present form, it simply tells the reader that one cannot infer anything from quantitative studies (Bernauer, Thomas, ETH Zurich)
220	12	5	34	5	35	What is meant by "the effects" could be clarified--the specific effects, specific projections, etc.?? (Mach, Katharine, IPCC WGII TSU)
221	12	5	34	5	36	There appears to be a contradiction between liens 34-35 and line 36. The authors need to clarify what is meant by these lines. (UNITED STATES OF AMERICA)
222	12	5	35	5	36	It seems that the statement that there exists robust evidence about many of the links between climate change and human security, contradicts the general assessment presented in the executive summary, where medium evidence is reported for most of the links. (Koubi, Vally, University of Bern)
223	12	5	46	5	50	Add a reference to section 12.6 and use the term national security to a link in to that section instead of talking about state? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
224	12	5	46	5	50	This paragraph is somewhat problematic. The last part of the first sentence, "...thus creating risks to national security through migration and violent conflicts" is really not an accurate reflection of the subsequent discussion. That discussion makes it clear that research has been mixed about whether reduced human insecurity really does lead to violent conflict (or other threats to national security). There is a lot of nuance at play here. One solution would be to replace the problematic phrase above with "...thus creating circumstances in which there is greater potential for violent conflict, especially in the absence of institutions that manage property rights and resolve conflicts effectively." (UNITED STATES OF AMERICA)
225	12	5	47	0	0	tautology (increased...may rise...) (Ross, Helen, The University of Queensland)
226	12	5	48	4	50	clarify sentences or remove\n (Halonen, Mikko, Gaia Consulting Oy)
227	12	5	49	5	49	this chapter should read "this Chapter" (Webersik, Christian, University of Agder)
228	12	5	52	5	52	The authors should consider deleting "the framing of" and restate the first sentence as: "Climate change as a security issue has been the subject of much debate." (UNITED STATES OF AMERICA)
229	12	5	52	5	54	Refocusing the implications of climate change for human security, centred on people's well-being rather than taking a national security view which misses how different individuals and communities may be affected. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
230	12	5	54	0	0	The authors should consider adding "or the most capable institutions (formal or informal)" at the end of the sentence. (UNITED STATES OF AMERICA)
231	12	5	54	0	0	There is a missing term after "vulnerable"; the authors should consider inserting "human populations." (UNITED STATES OF AMERICA)
232	12	5	54	6	1	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
233	12	6	0	6	5	This 'broad approach' to human security is not clear. What are the different approaches to human security that are available? Which approaches have been excluded here - and why? This should be explicit. And why has this broad approach been chosen? (Benjaminsen, Tor A., Norwegian University of Life Sciences)
234	12	6	1	6	3	The sentence states that "some countries are concerned about the security risks posed by climate change and the effects on relations between states." In The Global Security Defense Index on Climate Change: Preliminary Results "National Security Perspectives on Climate Change from Around the World" (released March 2013) at least 110 nations have identified climate change as a threat to their security with many integrating climate change into their defense and national security planning documents. Suggest strengthening this sentence and citing the report, available at: http://americansecurityproject.org/ASP%20Reports/Ref%200121%20-%20Global%20Security%20Defense%20Index%20P-Results.pdf . (UNITED STATES OF AMERICA)
235	12	6	4	6	4	Following comment on p.2, l.22-23, the approach taken needs to be set out. This sentence also does not flow from the previous one which relates to between state conflicts whereas the definition used at the start of 12.1.2 is person-centred. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
236	12	6	5	6	6	The line suggests that a broad definition of human security is widely supported in the literature. The chapter overstates the degree of agreement among academics that human security is a useful concept. While citing Roland Paris's work, the chapter fails to note his worries that human security may be too nebulous a concept and undermine the broader traditional understanding of security. Roland Paris, "Still an Inscrutable Concept," Security Dialogue 35, no. 3 (2004): 370–372. Busby 2008 also provides a discussion of climate change and human security and how a refined definition of national security is a more precise security concept to use as a basis of analysis. Joshua Busby, "Who Cares About the Weather? Climate Change and U.S. National Security," Security Studies 17, no. 3 (2008): 468–504. The chapter could benefit from a more extended discussion about what distinguishes "human security" from "national security" and how the emphasis on human security can be distinguished from a livelihoods analysis. (Joshua, Busby, University of Texas-Austin)
237	12	6	5	6	6	The emphasis on whatever threatens the vital core of human existence means that different people study different aspects of threats to the vital core -- livelihoods for some, culture for others, mobility, violence for still others. This makes the chapter something of a mishmash of potential bad things that happen to human beings as a result of climate change. It should be acknowledged that most of the literature on "security" in this space focuses on a narrow piece on whether or not climate change will contribute to violent conflict. While I agree that narrow focus may have its defects, the approach taken here doesn't acknowledge or engage with that debate and by virtue of the organization, omits key aspects of threats to human security (namely survival) and puts violence, the issue most identified with security, at the back of the chapter, implying less critical importance (?). In any event, if the structure remains as it is, there should be a clear logic for why the chapter starts with the discussion it does. (Joshua, Busby, University of Texas-Austin)
238	12	6	8	7	30	The problem with this section is obviously the high overlap with Chapter 13 on livelihoods. It's entitled "Economic and livelihood dimensions...", but I'd suggest deleting the first couple of words. The section really is about livelihood dimensions, whereas economic aspects are covered in Chapter 10. I guess the natural logical flow would be for the report to first have a chapter on the economic implications of climate change, then on the livelihood implications, and then on the human security implications (which could then refer back rather than forward to the chapter on the livelihood implications). In short, the order of Chapters 12 and 13 should perhaps be reversed. (Friedrichs, Joerg, University of Oxford)

#	Ch	From Page	From Line	To Page	To Line	Comment
239	12	6	8	7	30	Weak section. The two paths identified (exposure to shocks, and migration) miss important mechanisms, including access to productive resources, the costly need to hedge against greater uncertainty, and the marginalizing consequences of increased resource competition (Conca, Ken, American University)
240	12	6	8	7	30	We appreciate the effort in 12.2.1 to caution against mitigation and adaptation strategies that can advance or undermine human insecurity. However, this loaded assertion needs careful unpacking, including in the ways mitigation and adaptation themselves could, when at odds, negatively interact and thereby exacerbate human insecurity. The cursory statement, for example, in 12.2.2 that "some adaptation interventions in specific circumstances can decrease human security" prompts the question: isn't this maladaptation rather than indicative of a purported link with human security? We also find a similar weakness in the brief but loaded assertion in 12.5.2 that "climate change adaptation in Kenya has the capacity to aggravate surrounding conflicts" (without any explanation). (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
241	12	6	10	6	31	12.2.1 Could reference recent case studies on loss and damage (and relation to human security such as impacts on material aspects of livelihood security, evidence). Kusters, K. & N. Wangdi (2013). The costs of adaptation: Changes in water availability and farmers' responses in Punakha district, Bhutan. Int. J Global Warming, Vol. X, No. x, pp. xx-xx; Monnereau, I. & S. Abraham (2013). Limits to autonomous adaptation in response to coastal erosion in Kosrae, Micronesia. Int. J Global Warming, Vol. X, No. x, pp. xx-xx. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
242	12	6	14	6	15	" ... five capital assets..." Suggest to remove five and replace e.g. with various Not all research necessarily group them accordingly and always refer to specifically these five (cultural? – also noted in the figures/tables of the chapter) (Halonen, Mikko, Gaia Consulting Oy)
243	12	6	15	0	0	Does this need a reference: I recommend Flora, C.B., Flora, J.L., & Fey, S. (2004). Rural communities: Legacy and change (2nd ed.). Colorado: Westview Press. (Ross, Helen, The University of Queensland)
244	12	6	15	0	15	Reference required. (Burt, Peter, University of Greenwich)
245	12	6	16	6	20	reference to Box 18-4 on Local and Indigenous Knowledge but box 18-4 is actually on "differences in Detection and Attribution of Ecosystem Change on Land and in the Ocean" - the correct reference should be to Box 18-5 "Detection, Attribution and Traditional Ecological Knowledge (TEK) (Ramos Castillo, Ameyali, United Nations University - Institute of Advanced Studies)
246	12	6	20	6	20	I don't think 'cognate' is the correct word to use here: I suspect you mean 'other'. (Burt, Peter, University of Greenwich)
247	12	6	20	6	21	What kind of climate change impacts is this referring to? Is it climate change in general, both long-term gradual changes as well as extreme weather events? The paragraph seems to be focusing more on extreme weather episodes such as storms and floods. If so then it would help to make this explicit as long term changes in climate on natural resources could also be argued to in some cases benefit livelihoods (e.g. increased productivity, less reliance on irrigation due to rainfall) (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
248	12	6	20	6	23	Consider including reference to the psychological impacts of climate shocks in this section. The psychological impacts of extreme and traumatic events are documented. Additionally worry and concern about potential impacts also affects human security See for example Doherty and Clayton 2011; American Psychologist; May-Jun; 66(4): 265-76. doi: (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)

#	Ch	From Page	From Line	To Page	To Line	Comment
249	12	6	21	0	0	There is no definition of the concept of livelihood security that was used intensively in South Asia, see. E.g. Bohle, Hans-Georg, 2009: "Sustainable Livelihood Security. Evolution and Application", in: Brauch, H.G. et al.(Eds.): Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security (Berline et al.: Springer-Verlag): 521-528. (Brauch, Hans Guenter, Free University of Berlin)
250	12	6	24	6	31	This second point did not seem to follow from the main idea, which was that there were two ways that climate change influences livelihood security. This second point focuses more on how climate change prompts adaptation strategies, but the point never circles back and connects to livelihood security. Perhaps this can be done by taking the example described on page 7 (lines 27-30) and integrating this into this discussion. (UNITED STATES OF AMERICA)
251	12	6	37	6	46	One of the key insights of the literature on gender and natural resources is that women are key gatekeepers of common-property resources but tend to lack access when resources are marketized. The risks that climate change poses to women's access to open-access or common-property resources should be noted (Conca, Ken, American University)
252	12	6	37	6	46	The responses and capacity to adapt are also gendered. Women are not just vulnerable to climate change as emphasised here but can also act as agents of change and enhance resilience to climatic events if they are responsible for the well-being of the household. Womens cooperatives and organisations can be very effective, examples can be found on the coast in Peru in fishing communities when faced with El Nino events. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
253	12	6	37	6	46	The concept of dual vulnerability covers well the interlinkage between environmental and social vulnerability, see e.g. Bohle, Hans-Georg, 2001: "Vulnerability and Criticality: Perspectives from Social Geography", in: IHDP Update, 2/01: 3-5; at: < http://www.ihdp.uni-bonn.de/html/publi-cations/update/IHDPUpdate01_02.html >. (Brauch, Hans Guenter, Free University of Berlin)
254	12	6	37	6	46	see on the gender dimension of human insecurity, e.g. ThanhDam Truong, Des Gapter, Jeff Handmaker, Sylvia I. Bergh, (Eds.): Migration, Gender and Social Justice – Perspectives on Human Insecurity (Heidelberg – Dordrecht – London – New York: Springer, 2013). (Brauch, Hans Guenter, Free University of Berlin)
255	12	6	37	6	46	Women in food security: The role of women in producing food (in developing countries 60 to 80% of food is produced by women) could be enhanced by available data in chapter 12. (Place such data between lines 37 and 46 on page 6 under.12.2.1 Impacts on Material Aspects of Livelihood Security). (UNITED STATES OF AMERICA)
256	12	6	38	6	38	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
257	12	6	39	6	42	See also Neumayer, E., and Plumper, T (2007) The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002 in Annals of the Association of American Geographers, 97(3), 2007, pp. 551–566. for further evidence of the impact of gender on mortality from extreme events (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
258	12	6	42	6	43	There is evidence that women are more vulnerable to natural disasters than men affecting women's mortality rates. In other words, disasters kill more women than men. Neumayer, Eric and Thomas Plümper. 2008. "The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981-2002." Annals of the Association of American Geographers 97(3):551-566. (Webersik, Christian, University of Agder)
259	12	6	43	0	0	The loss of family livelihoods due to expanding gully activities in south eastern Nigeria and consequent school drop-outs (especially girls owing to local cultural alignment) has resulted to known cases of robbery, prostitution and other social vices (Ezenekwe, 2009).\n\n[Ezenekwe Elochukwu. Investigation into Climate Change Contribution to the worsening gully/landslide activities in Anambra state of south eastern Nigeria (case study: Nanka community). Report for the Zeeler Campaign Initiative of Peace Advocacy and Sustainable Development Outreach, PASDO, 2009]\n (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
260	12	6	43	6	43	Delete space between hazards and fullstop (Webersik, Christian, University of Agder)

#	Ch	From Page	From Line	To Page	To Line	Comment
261	12	6	43	6	43	Delete space after 'hazards'. (Burt, Peter, University of Greenwich)
262	12	6	54	6	54	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
263	12	6	54	7	2	Climate variability can also result in sub-optimal decisions as resource dependent communities to seek to actively manage and reduce risk and exposure to climate variability and extreme events. This could result in planting crops that do provide a satisfactory rate of return or selling goods and services at markets at below optimal value (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
264	12	7	2	7	6	I vsmmpy see how these health and education impacts are related to livelihood. They are of course somewhat connected, but you should either explicitly show these linkages, or transfer this to somewhere else. (Friedrichs, Joerg, University of Oxford)
265	12	7	4	7	4	'et al.' should be in italics (Burt, Peter, University of Greenwich)
266	12	7	6	7	6	'et al' should be in italics, with a full stop after the 'l' and a comma before the date. (Burt, Peter, University of Greenwich)
267	12	7	6	7	6	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
268	12	7	21	7	23	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
269	12	7	21	7	24	'et al.' should be in italics (Burt, Peter, University of Greenwich)
270	12	7	22	7	23	It could be added to point 2) that migration is used as a risk management strategy by farmers in rain-fed areas (Rainfalls) (Warner, Koko, United Nations University - Institute for Environment and Human Security)
271	12	7	23	7	24	Insurance should be approached critically as an adaptation intervention since it is a market-based tool with potential shortcomings in providing coverage for the most vulnerable. For example see Linneroth-Bayer and Vari (2008) Extreme Weather and Burden Sharing in Hungary, in (eds.) Adger, Paavola, Huq and Mace, Fairness in Adaptation to Climate Change, MIT Press.\n\n (NETHERLANDS)
272	12	7	27	7	27	In place of "emerging evidence," or in addition to the phrase, the chapter team could consider using summary terms for evidence (and agreement) to communicate its assessment of the available evidence. If other citations beyond the one already provided are relevant, it would be best to provide them. (Mach, Katharine, IPCC WGII TSU)
273	12	7	27	7	30	Some adaptation strategies or interventions may exacerabte human security. This point is important for designing policies aiming to enhance adaptation to climate change. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
274	12	7	27	7	30	In certain cases interventions that have sought to increase the ability of communities to cope with flooding have had the unintended consequence of decreasing their ability to respond to drought. This is an additional example of adaptation interventions increasing exposure to other hazards (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
275	12	7	27	7	30	A concluding sentence such as "The effectiveness of adapation to increase security depends on the current spread of people and resources." is needed after the final sentence in this section. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
276	12	7	33	11	23	This section dedicates disproportionate attention to local communities, indigenous people, and traditional knowledge. Climate change equally poses challenges to global industrial civilization as a whole, including related forms of knowledge. As you state on p. 9, line 14, there are something like 500 million indigenous people worldwide. That's about 8% of the global population. With all due respect, you should pay more attention to the cultural implications of climate change for the remaining 92%. You have dedicated an incredible amount of work to this section, which has proliferated to almost 20% of the chapter length. Painful as it may be, I suggest pruning it down to 10% and then adding more content on the implications of climate change for industrial civilization so that the final length of this section should again be close to (but no more than) 20%. For information about the social and political implications of climate change for industrial civilization, see Jörg Friedrichs (2013) <i>The Future Is Not What It Used to Be: Climate Change and Energy Scarcity</i> , Cambridge, MA: MIT Press. I've sent the galley version to wg2-ar5-wg2-ar5-supportingmaterial@ipcc-wg2.gov. It's a PDF, and the file name is "Friedrichs 2013". The book is due to appear on 9 August this year, and I'm asking you to use the galley only for the report and not to circulate it. (Friedrichs, Joerg, University of Oxford)
277	12	7	33	11	23	Section 12.3: This entire section on "Cultural dimensions of human security" needs to emphasize its relevance to] for this chapter. The authors should consider removing the 12.3 section from the security chapter of this report and considering where else this information fits into the document.\nIf the 12.3 section is not removed then this chapter needs to clarify that it is dealing with two scopes: large-scale security that deals with global and state security, and smaller scale security that deals with concerns such as indigenous welfare (generally welfare and security are considered separate but related issues).\nThe emphasis and the bulk of the evidence should be discussing large-scale security issues. As it is written it seems like indigenous groups are the most important factor when dealing with global security issues (which is not the case). The link between indigenous knowledge and security is tenuous at best- this either needs to be fleshed out and clarified or moved to another section of the report. Of the whole 12.3.4 section, "Local and traditional forms of knowledge," the only information needed is found in the sentence "There is strong evidence that mutual integration and coproduction of local and traditional and scientific knowledge will enhance resilience, increase adaptive capacity and reduce vulnerability." (p. 10, lines 47-49). Suggest the authors revise to reflect dual states of global and state level security, and more local, indigenous, and cultural dimensions. (UNITED STATES OF AMERICA)
278	12	7	35	8	31	The section on 'how culture interacts with climate impacts' could acknowledge that culture is a 'contested term' that is widely viewed as an arena of struggle/negotiation/fluidity etc (as with 'community' which is later referred to as a contested term). The fact that cultures exist globally, not just among indigenous people, could be underscored. It is clear which case-studies/examples derive from research with indigenous communities, it is less clear where studies have been conducted among cultural groups in the 'Global North'. (McMichael, Celia, La Trobe University)
279	12	7	37	7	40	One wonders if the catch-all working definition of culture outlined in 12.3.1 is actually workable, namely: "encompassing knowledge, worldviews, beliefs, norms, values, social relationships, perceptions of risk, power relations and responses to the world"... (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
280	12	7	37	8	34	This section would benefit from an explicit reference to reliance on informal institutions, not just formal ones and not just state ones. This is often culturally driven and has important implications, especially in terms of raising awareness that investment in the most effective/legitimate institutions will yield the highest return (and they may not be state institutions or even formal institutions). Moreover, the highest adaptive and coping capacities of a society may be managed through informal institutions. (UNITED STATES OF AMERICA)
281	12	7	38	7	42	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
282	12	7	42	7	43	Does identity and sense of belonging also contribute to collection actions and adaptation? Why does this only refer to how identity may contribute to polarisation of power relations and conflicts? Collective action is related to identity formation and maintenance which is referred to in 12.3.2 and particularly 'place-based groups' and community attachment. Perhaps collective action and identity should be linked more explicitly somewhere in the text. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
283	12	7	42	7	43	"This assessment....." Referring to which assessment ? Good to be very clear The entire sentence is quite challenging to grasp – any possibilities to clarify/modify (or remove) ? (Halonen, Mikko, Gaia Consulting Oy)
284	12	7	45	7	50	Inadequate referencing for climate change impacts on human security (NETHERLANDS)
285	12	7	49	0	0	very odd statement--significant cultural implications simply because it has consequences for people? (Conca, Ken, American University)
286	12	7	49	7	49	'et al.' should be in italics (Burt, Peter, University of Greenwich)
287	12	7	49	7	49	As calibrated uncertainty language, "high confidence" should be italicized. (Mach, Katharine, IPCC WGII TSU)
288	12	7	50	7	50	knock-on is a colloquialism, use more formal language. (UNITED STATES OF AMERICA)
289	12	7	52	8	3	Full Reference of Oswald Spring et al. 2013 is missing. (NETHERLANDS)
290	12	7	53	7	53	Deelete comma after 'fishing'. (Burt, Peter, University of Greenwich)
291	12	7	53	8	3	This sentence should include unpredictable weather, as we have found in the Alaskans Sharing Indigenous Knowledge (www.AKSIK.org) project. Also, Oswald Spring et al. 2013 is not in the References. (Rosales, Jon, St. Lawrence University)
292	12	7	54	8	3	Section 12.1: One concept definition missing in this section is that of direct and indirect climate impacts. This concept is best defined in Section 12.2, Subsection 12.3.1, page 7, beginning on line 54 and continuing on the top of the next page (page 8) in lines 1 through 3. This definition needs to be worked into Section 12.1, because, after all the Chapter is about climate impacts, and need to be addressed early in the Chapter. (UNITED STATES OF AMERICA)
293	12	8	4	8	4	Delete comma after 'depend'. (Burt, Peter, University of Greenwich)
294	12	8	4	8	4	Please delete the comma after "depend". (UNITED STATES OF AMERICA)
295	12	8	9	8	9	Insert 'et' after Adger reference (NETHERLANDS)
296	12	8	12	8	23	The statement: "cultural embedded perception in some cases increases human security and in some cases are negative to (...) of facilitating or hindering adaptation" does not give meaning as long as the following sentences does not outline how perceptions either facilitates or hinder adaptation. (Dannevig, Halvor, Western Norway Research Institute)
297	12	8	14	8	15	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
298	12	8	15	8	18	Unclear sentence starts with 'in scientific studies' and switches midway to 'anthropological studies'. Kuruppu and Liverman (2011) reference is good but there are many more studies confirming this (for example Slegers 2008, Vedwan and Rhoades 2001, Osbahr et al. 2011). (NETHERLANDS)
299	12	8	18	8	21	The word "both" seems to need some follow-up ? And? (Halonen, Mikko, Gaia Consulting Oy)
300	12	8	19	0	0	The sentence implies that there are two variables "denial" and "?" because it states "and have observed BOTH denial,..." but there is no second variable explained. Add explanatory text or delete 'both'. (UNITED STATES OF AMERICA)
301	12	8	19	8	19	Omit 'both' before denial (NETHERLANDS)
302	12	8	20	8	21	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
303	12	8	21	8	23	The suggestion that climate change denial can be explained as being due to 'paralysis in the face of externally-imposed change' seems to be too reductive/narrow. There are other explanations that are documented in research: lack of understanding of climate science, personal experience is of day-to-day 'weather' rather than 'climatic change' etc. (McMichael, Celia, La Trobe University)
304	12	8	25	8	31	Tebboth 2013 (Understanding intractable environmental conflicts: the case of the village that wouldn't fall quietly into the sea; Geographical Journal in press) explores how the issue of coastal erosion in Happisburgh, Norfolk has been framed and the implications this has for agreeing a mutually acceptable solution. The research specifically focused on the differences in understanding between local and national actors; it supports the main assertions of the paragraph and could be cited as additional evidence. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
305	12	8	25	8	31	This publication documents how scientific knowledge of future climate change have been instrumental in getting adaptation to climate change on the municipal planning agenda: Dannevig, H., Rauken, T., & Hovelsrud, G. (2012). Implementing adaptation to climate change at the local level. Local Environment, 17(6-7), 597–611. doi:10.1080/13549839.2012.678317 (Dannevig, Halvor, Western Norway Research Institute)
306	12	8	25	8	31	See paper on the importance of institutions in this regard.\nBarnett, J. and M. Webber, 2010: Migration as Adaptation: Opportunities and limits. In: Climate Change and displacement: Multidisciplinary perspectives. Hart Publishing, Oxford. Pgs 37-56. (UNITED STATES OF AMERICA)
307	12	8	26	8	26	The term "local farmer" should be rethought. All farmers are local, unless we are referring to global farming corporations I suppose. I think the sentence should be ended after the word "assimilated." Why isolate farmers as examples of people who may not understand or assimilate climate change information? (Rosales, Jon, St. Lawrence University)
308	12	8	29	8	30	The point of the second to last sentence is not clear. How is cosmology linked to human security. This point need to be more clearly articulated or deleted. (UNITED STATES OF AMERICA)
309	12	8	34	0	0	The table is too dense and somewhat overloaded with bullet points and reference. As a consequence, it may be useful for your internal drafting purposes but it's hardly helpful to the reader. In its current form, it further adds to the length of this already somewhat oversized section rather than making it more handy and nimble. (Friedrichs, Joerg, University of Oxford)
310	12	8	43	8	46	It should be pointed out that community-level adaptation is useful for reducing risks and building capacity at the community level. Adaptation plans and action are still required at other spatial scales (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
311	12	8	44	8	46	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
312	12	8	46	8	46	Insert comma after 'Specifically'. (Burt, Peter, University of Greenwich)
313	12	8	46	8	52	Community led action is important for adapting to climate change. Hierarchical power relations (state interventions, regulations) can hinder this process. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
314	12	8	48	8	48	Delete comma after 'learning'. (Burt, Peter, University of Greenwich)
315	12	8	50	8	52	An additional sentence should be inserted to explain why hierarchical power relations impede collective action. (UNITED STATES OF AMERICA)
316	12	8	51	8	52	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
317	12	9	3	9	5	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
318	12	9	7	9	9	Local community responses are also shaped by political and economic globalization. Additional citation: Regional drought has a global impact, Troy Sternberg Nature 472, 169 (14 April 2011). (UNITED STATES OF AMERICA)
319	12	9	7	9	9	This last sentence was unclear, please explain further the decoupling process that was being alluded to here. (UNITED STATES OF AMERICA)
320	12	9	7	9	9	"Local community...." The sentence includes important information but could be written in a more understandable manner (or cut into two parts?) (Halonen, Mikko, Gaia Consulting Oy)
321	12	9	8	9	8	Crucial reference missing that links economic globalisation with responses: O'brien et al. 2004 (NETHERLANDS)
322	12	9	12	10	9	Section 12.3.3: The extensive focus on indigenous issues give undue weight to those groups as more vulnerable than others. Further, this section gives the impression that indigenous groups are vulnerable regardless of circumstance, when there are many indigenous people and groups who live in urban areas, for instance, where their vulnerability may be different. All vulnerable groups and populations should be addressed in this chapter with the same detail. (UNITED STATES OF AMERICA)
323	12	9	14	0	0	about or up to, not both statements. (Ross, Helen, The University of Queensland)
324	12	9	14	9	15	Please revise the beginning of this sentence for clarity. (UNITED STATES OF AMERICA)
325	12	9	14	10	9	The discussion in this section is rather static with respect to other changes, in particular economic, affecting the human security of indigenous peoples. Some comment on other factors that climate change might be warranted in this section. (Brzoska, Michael, University of Hamburg)
326	12	9	15	9	15	See on indigenous rights: Rodolfo Stavenhagen: Pioneer on Indigenous Rights (Heidelberg – Dordrecht – London – New York: Springer-Verlag, 2013); Rodolfo Stavenhagen: The Emergence of Indigenous Peoples (Heidelberg et al.: Springer, 2013). Rodolfo Stavenhagen: Peasants, Culture and Indigenous Peoples: Critical Issues (Heidelberg et al.: Springer, 2013). (Brauch, Hans Guenter, Free University of Berlin)
327	12	9	18	0	19	not clear what this is saying, can you expand with another sentence? (Ross, Helen, The University of Queensland)
328	12	9	18	9	20	I cannot access all of the papers referenced in this short section on the 'significant linkages between historical colonization and current climatic changes' but would only use 'significant' if statistically so. This applies to the use of the term on both line 18 and line 20. (Smith, Christopher, United Nations University)
329	12	9	19	9	19	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
330	12	9	19	9	19	'et al' should be in italics, with a full stop after the 'I' and a comma before the date. (Burt, Peter, University of Greenwich)
331	12	9	20	9	23	Quite a long sentence and it sounds as if it is leading to a counter argument which is not made. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
332	12	9	27	9	27	In place of "general agreement," the chapter team should consider using summary terms for agreement (and evidence) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
333	12	9	32	9	38	The list about ineffectiveness of traditional practices should also include reference to attempts by numerous governments (for example) to restrict movement of traditionally mobile groups thus reducing their security and increasing their exposure. Indeed Morrissey (2009; Environmental Change and Forced Migration: A State of the Art Review. Background Paper. Oxford: University of Oxford.) and Castles (2010. Understanding Global Migration: A Social Transformation Perspective. Journal of Ethnic and Migration Studies, 36, 1565-1586.) highlight a sedentary bias within much development thinking (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
334	12	9	32	9	38	This last sentence should be reconstructed for clarity. The structure following the colon is very hard to follow. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
335	12	9	40	9	41	Why is post-colonial power relations mentioned here? The next sentence talks about the Arctic so no link to post-colonial powers. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
336	12	9	40	9	41	Sweeping statement. Surely not all indigenous peoples? (Burt, Peter, University of Greenwich)
337	12	9	41	9	43	We have learned with the AKSIK project that sea ice also dampens storm surges. This point is documented on our website (www.AKSIK.org). We are submitting this information for publication this summer so I am not sure if you can use this point. (Rosales, Jon, St. Lawrence University)
338	12	9	41	9	43	Cross-references to relevant material in Chapter 28 could be provided for this statement. (Mach, Katharine, IPCC WGII TSU)
339	12	9	48	9	48	Insert ')' after '2011'. (Burt, Peter, University of Greenwich)
340	12	9	48	9	48	Insert comma after 'Ross'. (Burt, Peter, University of Greenwich)
341	12	9	49	9	49	Insert comma after 'ACIA'. (Burt, Peter, University of Greenwich)
342	12	9	51	9	51	Insert comma after 'Nuttall'. (Burt, Peter, University of Greenwich)
343	12	9	53	9	53	Insert comma after 'Wiiams'. (Burt, Peter, University of Greenwich)
344	12	10	1	0	0	I recommend rewording this statement to clarify. They are traditionally highly involved in resource management, but in many cases they are excluded from or marginalised within formal, government decision-making about resource management (e.g. formation of policies, access to programs). (Ross, Helen, The University of Queensland)
345	12	10	3	10	4	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
346	12	10	4	10	5	what is the risk related to tourism development and industrial activities? The problem seems to be that their voice is not heard. Not obvious what the link is between participation in management or decisions and climate change and the development of industry? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
347	12	10	5	0	0	...and reaping benefits (Ross, Helen, The University of Queensland)
348	12	10	6	10	9	"Lack...." Suggest cutting the sentence in two (e.g. after first brackets => "However, there are....) (Halonen, Mikko, Gaia Consulting Oy)
349	12	10	10	0	11	I find the issue of land rights and resource rights conspicuously missing from this review. Having, or not having, land rights and resource rights (which can include marine resources), interacts with the arguments above. It affects direct access to the resources (many of which are very important culturally), and likelihood of being included in government decision-making, cf p. 10 line 1. (Ross, Helen, The University of Queensland)
350	12	10	12	10	46	See also Nakashima, D.J., K. Galloway-McLean, H.D. Thulstrup, A. Ramos Castillo, and J.T. Rubis (2012). Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. UNESCO and UNU, Paris and Darwin, 120pp. And See also Climatic Change Special Issue (in press) on Climate Change Mitigation and Adaptation with local Communities and Indigenous Peoples (Ramos Castillo, Ameyali, United Nations University - Institute of Advanced Studies)

#	Ch	From Page	From Line	To Page	To Line	Comment
351	12	10	12	11	23	This section does not do justice to the role of local cultural traditions. For example, p.11.l.15 states that local cultures may not have the means to cope with unprecedented conditions under climate change. This is unfair to say because it remains to be seen whether western scientific knowledge has the means to respond. And it should not be ignored that it is modern science-based culture that is the CAUSE of climate change in the first place. The passage does not mention the fact that indigenous cultures have been largely sustainable (though they too often did modify the environment) and are hence more 'advanced' than modern western culture in a very important sense. Indigenous cosmologies also contain more ecologically sound ideas about the human-nature relationship that need to be taken seriously. Further corporatisation and industrialisation of global agriculture, often in the developing countries where most indigenous people live, is threatening what remains of their sustainable ways of life, and there is a danger that haphazard climate change adaptation schemes could accelerate this process. The growing literature on food sovereignty takes up many of these issues. (Reuter, Thomas, University of Melbourne)
352	12	10	14	10	14	In place of "agreement," the chapter team should consider using summary terms for agreement (and evidence) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
353	12	10	21	10	21	Change 'knowledges' to 'knowledge'. (Burt, Peter, University of Greenwich)
354	12	10	24	10	26	The argument can be made that regardless of whether the knowledge is objectively valid or not, the perceptions people have is what drive their behaviour, actions and adaptations therefore including traditional knowledge which will influence perceptions and worldview is necessary part of understanding social change. This is highlighted in the FAQ 12.1 on page 25 (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
355	12	10	25	10	26	The three reasons why local knowledge matters are well framed here, but the remainder of the section does not follow this framework--each of the 3 points should be explained, established, and cited. (Conca, Ken, American University)
356	12	10	27	10	27	serve should read "serves" (Webersik, Christian, University of Agder)
357	12	10	27	10	27	Change 'provide' to 'provides'. (Burt, Peter, University of Greenwich)
358	12	10	27	10	27	Do you really think that traditional knowledge, necessarily based on local observations, can compete with scientific modelisations based on a worldwide observational network and the laws of fluids mechanics for weather forecasting ?. (Petit, Michel , CGIET rue de Bercy)
359	12	10	28	10	29	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
360	12	10	33	10	33	Insert space after first 'and'. (Burt, Peter, University of Greenwich)
361	12	10	34	10	36	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
362	12	10	38	10	38	Insert comma after 'Africa'. (Burt, Peter, University of Greenwich)
363	12	10	40	10	41	It should be noted that this evidence is from Mexico and it shouldn't be extrapolated to all mountainous regions\n\n (NETHERLANDS)
364	12	10	46	10	47	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
365	12	10	47	10	47	In place of "strong evidence," the chapter team should consider using summary terms for evidence (and agreement) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
366	12	10	49	10	51	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
367	12	11	1	11	7	The authors should emphasise that assessments of climate change and human security issues used by decision makers should incorporate traditional knowledge alongside scientific knowledge. It is very useful for effective policy making and decisions because people's actions and behaviours are based on their perceptions which are influence by lay knowledge. It needs to be carefully considered however as some traditional knowledge may conflict with scientific information. It should be taken as complementary. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
368	12	11	19	11	23	Another example relevant to the Himalayan context described here centres on other forms of interventions (such as foreign aid to address acute malnutrition) that have also inadvertently resulted in loss of knowledge. This loss of 'know-how' has also resulted in losses to key cultural values and revered customs that are seen as key assets to support activities such as tourism as an adaptation and diversification strategy of livelihood options (e.g. Adler, et al., 2012). In other words, losses of key endemic knowledge can also restrict options for adaptation in support of multiple valued outcomes, such as poverty alleviation. REF: Adler, C.E., McEvoy, D., Chhetri, P., Kruk, E. (2012). The role of tourism in a changing climate for conservation and development. A problem-oriented study in the Kailash Sacred Landscape, Nepal. Policy Sciences, online first: DOI 10.1007/s11077-012-9168-4 (Adler, Carolina , Swiss Federal Institute of Technology (ETH) Zurich)
369	12	11	26	16	9	I do not understand the organizing principle for this section. What are the pathways by which climate change leads to or alters patterns of migration? The discussion is divided into extreme events and longer-term climate change, which is not an effective way to organize what we know. It would be more helpful first to conceptualize the causal; pathways and say what we know about each, and then discuss the resultant consequences for human security (Conca, Ken, American University)
370	12	11	28	14	49	12.4.1: impacts of cc on displacement, migration, and mobility: since the chapter uses the word "evidence" so often, consider increasing the references to empirical work. 2011 Afifi and Jäger did a special edition of International Migration summarizing the EACH-FOR case studies which were the first-time global empirical research project of 23 case studies on enviornmental change and forced migration scenarios. Neuchatel and IOM 2012 bibliography lists newer references. Also could reference Gunvor Jonnson's (2009) review of about 40 case studies in Sub-Saharan Africa, Warner, K. & T. Afifi (2013) Where the rain falls: Evidence from 8 countries on the circumstances under which households use migration to manage the risk of rainfall variability and food insecurity, Climate and Development, Vol. x, No. x, pp. xx-xx. (Warner, Koko, United Nations University - Institute for Environment and Human Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
371	12	11	30	12	10	12.4.1.1 evidence on cc and migration: Etzold, B.; A. Ahmed; S. Hasan & S. Neelormi (2013) Clouds gather in the sky, but no rain falls. Vulnerability to rainfall variability and food insecurity in Northern Bangladesh and its effects on migration, Climate and Development, Vol. x, No. x, pp. xx-xx; Murali, J. & T. Afifi (2013) Rainfall variability, food security and human mobility in the Janjgir-Champa district of Chhattisgarh State, India, Climate and Development, Vol. x, No. x, pp. xx-xx; Sakdapolrak, P.; P. Promburom & A. Reif (2013) Why successful in-situ adaptation with environmental stress does not prevent people from migrating? Empirical evidence from Northern Thailand, Climate and Development, Vol. x, No. x, pp. xx-xx; Van der Geest, K.; N.C. Thao & N.V. Khoa (2013) A wealth group-differentiated analysis of climate impacts and migration in the Upper Mekong Delta, Vietnam, Climate and Development, Vol. x, No. x, pp. xx-xx; Rademacher-Schulz, C.; Schraven, B. and E.S. Mahama (2013) Time matters – shifting seasonal migration in Northern Ghana in response to rainfall variability and food insecurity, Climate and Development, Vol. x, No. x, pp. xx-xx; Afifi, T.; E. Liwenga & L. Kwezi (2013) Rainfall induced crop failure, food insecurity and outmigration in Same-Kilimanjaro, Tanzania, Climate and Development, Vol. x, No. x, pp. xx-xx; Milan, A. & S. Ruano (2013) Rainfall variability, food insecurity, migration and trapped populations in Cabricán, Guatemala, Climate and Development, Vol. x, No. x, pp. xx-xx; Milan, A. & R. Ho (2013) Livelihood and migration patterns at different altitudes in the Central Highlands of Peru, Climate and Development, Vol. x, No. x, pp. xx-xx; Smith, C. (2013) Modeling migration futures: Development and testing of the Rainfalls Agent-Based Migration Model-Tanzania, Climate and Development, Vol. x, No. x, pp. xx-xx (Warner, Koko, United Nations University - Institute for Environment and Human Security)
372	12	11	32	11	33	The sentence that states that existing migration systems may be disrupted by climate change should also acknowledge that they may not be disrupted by climate change. The best predictor of population movement is previous movement and, for well-established systems, climate change might have a negligible effect: this should be acknowledged (Kentarchos, Anastasios, European Union DG Research. Directorate Environment Climate Change & Environmental Risks Unit)
373	12	11	33	0	0	could be disrupted, or expanded? (Ross, Helen, The University of Queensland)
374	12	11	34	11	35	I think that the definition of migration ("permanent move by a person of at least one year") is too restrictive. A lot of publications, of which some are also cited in AR5 (e.g. van der Keest 2011, Rademacher-Schulz and Mahama 2012), suggest that temporarily more limited forms of migration (in particular seasonal migration) are also of an enormous significance for human security. (Schraven, Benjamin. German Development Institute)
375	12	11	34	11	36	I think this sentence would be better as an introduction to the section (ie move to line 32). (Burt, Peter, University of Greenwich)
376	12	11	41	11	41	The best recent report is: United Nations Populations Division, 2012: World Urbanization Prospects, the 2011 Revision (New York: UN); at: < http://esa.un.org/unup/index.html > should be added. (Brauch, Hans Guenter, Free University of Berlin)
377	12	11	41	11	41	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
378	12	11	41	11	42	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
379	12	11	45	0	0	Add 'Mountain people have long adjusted to living in fragile and marginal environments. Migration is long-established as a consequence of the marginal conditions within many mountain zones, but also represents an important potential form of adaptation to such conditions. ' Citation: Banerjee, Soumyadeep, Richard Black, Dominic Kniveton, Michael Kollmair (2012) The changing Hindu Kush Himalayas: Environmental change and migration. In Etienne Piguet & Frank Laczkó (Eds.) People on the move in a changing climate - Comparing the Impact of Environmental Change on Migration in Different Regions of the World. Global Migration Issues Series. Amsterdam : Springer. [Forthcoming]. (Molden, David, International Centre for Integrated Mountain Development (ICIMOD))
380	12	11	45	11	45	A reference to the Foresight report would be quite meaningful here as this touches on one of the most critical findings of the report. (Schraven, Benjamin, German Development Institute)

#	Ch	From Page	From Line	To Page	To Line	Comment
381	12	11	45	11	45	I suggest substituting "census period, even though cities..." with "census period. However, cities..." (Milan, Andrea, United Nations University Institute for Environment and Human Security)
382	12	11	49	0	0	Add citation Banerjee, Soumyadeep, Jean-Yves Gerlitz and Dominic Kniveton (2012) A methodology for assessing patterns of labour migration in mountain communities exposed to water hazards. In Faist, Thomas and Jeanette Schade (Eds.) Disentangling Migration and Climate Change, Chapter 4. Heidelberg/London: Springer International. [Forthcoming] (Molden, David, International Centre for Integrated Mountain Development (ICIMOD))
383	12	11	49	11	49	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
384	12	11	52	11	53	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
385	12	11	52	11	53	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
386	12	12	0	14	0	Consider identifying the combination of repeated extreme weather events with slower biophysical changes, such as erosion and sea level and its impact on mobility - see, Bronen, R. and Chapin, F.S., Adaptive governance and institutional strategies for climate-induced community relocations in Alaska, Proceedings of the National Academy of Sciences, May 20, 2013, http://www.pnas.org/content/early/2013/05/16/1210508110.full.pdf+html , doi:10.1073/pnas.1210508110 (Bronen, Robin, University of Alaska)
387	12	12	1	12	10	There are various methods that could be added here with various references. See my previous comment 6. There are also Participatory Research Approaches and Household Surveys that could be used. See for example: Rademacher-Schulz, C., Afifi, T., Warner, K., Rosenfeld, T., Milan, A., Etzold, B. and Sakdapolrak, P., 2012. Rainfall variability, food security and human mobility. An approach for generating empirical evidence; Intersections No. 10. Bonn, Germany. There are also modeling exercises in that context that can be drawn from several articles, such as: Smith, C. (2013) Modeling migration futures: Development and testing of the Rainfalls Agent-Based Migration Model-Tanzania, Climate and Development. (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
388	12	12	1	12	10	The authors should add a more robust discussion of resource abundance as an outcome of climate change and it's relation then to human security. Specifically, changed seasonality of weather and increasing periods of intense rain, for example, as well as abundance in terms of net gain in resources such as water. Since rate of change and variability have been noted in the chapter as the most significant determinants of adaptive capacity, abundance is a critical issue. Moreover, this chapter should attempt to move the discussion beyond a narrow focus on resource scarcity and more into the realm of governance and management of available resources, whatever they may be and however they might change (e.g. don't forget the importance of access, not availability when it comes to human security and conflict). (UNITED STATES OF AMERICA)
389	12	12	1	12	10	Several additions could be made to this paragraph on research methods: Agent-Based Modeling is not mentioned (for example the work of Chris Smith in Burkina Faso (2012) and Tanzania (2012). Second, the use of mixed methods increasingly used in empirical work / field studies (ethnographic, participatory research approaches, household surveys, see Rademacher et al. 2012, and Warner 2011 (Rademacher-Schulz, C., Afifi, T., Warner, K., Rosenfeld, T., Milan, A., Etzold, B. and P. Sakdapolrak (2012). Rainfall variability, food security and human mobility. An approach for generating empirical evidence. Intersections No. 10. Bonn: UNU-EHS. Warner, K. 2011. Environmental change and migration: methodological considerations from ground-breaking global survey. Journal of Population and Environment. Popul Environ (2011) Vol. 33. No. 1. 3-27. Doi 10.1007/s11111-011-0150-4. ISSN 0199-0039). Third, the paragraph talks about the use of surveys without mentioning Bilsborrow and Henry's 2012 paper in Population and the Environment Journal on "The use of survey data to study migration-environmental relationships in developing countries: alternative approaches to data collection" which is relevant to the climate change and migration context (and not yet referenced in the chapter) (Warner, Koko, United Nations University - Institute for Environment and Human Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
390	12	12	3	12	5	In addition to the methodological paper by Piguet (2010) a more recent paper by McLeman is available: McLeman, R., 2013: Developments in modelling of climate change-related migration. Climatic Change, 117 (3), pp599-611. http://link.springer.com/article/10.1007%2Fs10584-012-0578-2 . However, both the Piguet and McLeman papers conclude that, at the time of their publication, no substantive agent-based modelling results were published. This is not the case for the McLeman (2013) paper, as noted by later references used within chapter 12. I imagine it is unnecessary to verify this within the chapter though. (Smith, Christopher, United Nations University)
391	12	12	3	14	22	The authors should emphasise that coastal areas are vulnerable to climate change and at the same time have some of the highest populations with increased migration towards the coastline. Policy measures addressing risks of climate change impacts on human security should be a priority. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
392	12	12	4	12	4	Insert space after 'in'. (Burt, Peter, University of Greenwich)
393	12	12	5	0	0	Add citation Banerjee, Soumyadeep, Jean-Yves Gerlitz and Dominic Kniveton (2012) A methodology for assessing patterns of labour migration in mountain communities exposed to water hazards. In Faist, Thomas and Jeanette Schade (Eds.) Disentangling Migration and Climate Change, Chapter 4. Heidelberg/London: Springer International. [Forthcoming] (Molden, David, International Centre for Integrated Mountain Development (ICIMOD))
394	12	12	5	12	5	Insert following citation on climate change and human mobility: Hastrup, Kirsten and Karen Fog Olwig. 2012. Climate change and human mobility: global challenges to the social sciences. Cambridge [England] ; New York: Cambridge University Press. (Webersik, Christian, University of Agder)
395	12	12	5	12	5	Here an additional citation can be useful as it thoroughly reviews the use of analogies in vulnerability research: Ford, James D., et al. "Case study and analogue methodologies in climate change vulnerability research." Wiley Interdisciplinary Reviews: Climate Change 1.3 (2010): 374-392.\n\n(NETHERLANDS)
396	12	12	8	12	10	There is an important qualifier in 12.4.1.1 that should be flagged upfront, e.g. in the executive summary: "As with all the major elements of human security in this Chapter, the issue of causality between environment or risk and the human security outcomes of migration are not established". This, by the way, will need proper framing as it could readily be dismissed as a major weakness. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
397	12	12	13	0	0	this section focuses exclusively on extreme events as a spur to migration. Presumably this is because more is known about this particular climate impact on migration, but the discussion should focus on climate impacts beyond extreme events, discussing both what is know and not known. (Conca, Ken, American University)
398	12	12	13	14	9	12.4.1.2 key rainfall findings on whether cc impacts increase or decrease mobility (check wording—displacement used interchangeably with mobility, need a citation that clarifies language like Nansen Initiative policy brief) (Warner, Koko, United Nations University - Institute for Environment and Human Security)
399	12	12	15	0	0	Differentiate between indiividual migration and community relocation/resettlement (Bronen, Robin, University of Alaska)
400	12	12	15	12	52	The concept of place attachment could be used to explain some of the trends in displacement or non-displacement. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
401	12	12	17	12	17	Insert 'the' after 'in'. (Burt, Peter, University of Greenwich)
402	12	12	27	12	27	Structural causes of vulnerability - include both 'race' and 'ethnicity'? (McMichael, Celia, La Trobe University)
403	12	12	27	12	27	structural causes of social vulnerability (add social) (Brauch, Hans Guenter, Free University of Berlin)

#	Ch	From Page	From Line	To Page	To Line	Comment
404	12	12	30	12	30	Insert following citation dealing with slow recovery following Hurricane Katrina: Mutter, John. 2010. "Opinion: Disasters widen the rich-poor gap." Nature 466. (Webersik, Christian, University of Agder)
405	12	12	32	12	32	Casual usage of the word "unlikely" should be avoided, as the term is a reserved likelihood term in the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
406	12	12	34	0	0	Gender is accidentally used interchangeably with women here. Gender means men and women. This sentence uses "they" where it should use "women". \n"...extreme events, especially when THEY lose..." (UNITED STATES OF AMERICA)
407	12	12	38	0	0	Seccion12.4.1.2. Regarding Restrict Mobility, there is a specific document on Climate Change and Accesibility in Latin America"which claims accessibility as a central item to be identified in the local planning process for the development and attention to the impacts of climate change in rural areas. It is necessary to raise the interest of the countries of Latin America in the investment and development of public policies to improve accessibility in line with economic, social, cultural and environmental rights of communities. Otherwise, emergency response to serious situations facing rural communities would be met with short-term vision. (Climate change, livelihoods and access to vulnerable communities: Colombian case pp. 33-38, ILO and theInternational Forum for Rural Transport and Development IFRTD, to be published). (Harsdorff, Marek, ILO)
408	12	12	38	0	52	Two paragraphs are not clear. Idea needs more elaboration. Some sentences are not complete. It does not distinguish between the independent and dependent variables. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
409	12	12	38	12	52	The two paragraphs are not clear content wise and the message is missing. The idea needs more elaboration. Some sentences are not complete. Also, the paragraphs do not distinguish between the independent and dependent variables. (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
410	12	12	45	12	45	Please add: Villagran, 2011: (The reference is to 2011 and not to 2009) (Brauch, Hans Guenter, Free University of Berlin)
411	12	12	47	12	47	Just as populations may not be displaced by extreme weather events so people may be attracted to an area that has suffered an extreme climate event. Current research in China provides anecdotal evidence of family members returning to sites that have recently experienced flooding or droughts to help family members and other members of the affected community cope with the effects (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
412	12	12	48	12	48	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
413	12	12	48	12	49	Sentence fragment. Please revise. (UNITED STATES OF AMERICA)
414	12	12	48	12	49	sentence to be completed (Halonen, Mikko, Gaia Consulting Oy)
415	12	12	49	0	0	note unfinished sentence (Ross, Helen, The University of Queensland)
416	12	12	49	0	0	Add 'A regional study in the Hindu Kush Himalayas, found that the option of labour migration was not available in the livelihoods portfolio of some households for economic reasons. A lack of economic resources prevented 28 % of surveyed households from partaking in labour migration. ' Citation: Add citation Banerjee, Soumyadeep, Jean-Yves Gerlitz and Dominic Kniveton (2012) A methodology for assessing patterns of labour migration in mountain communities exposed to water hazards. In Faist, Thomas and Jeanette Schade (Eds.) Disentangling Migration and Climate Change, Chapter 4. Heidelberg/London: Springer International. [Forthcoming] (Molden, David, International Centre for Integrated Mountain Development (ICIMOD))
417	12	12	49	12	49	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
418	12	12	49	12	52	Figure 12-1 appears to be theoretical/conceptual, asserting an inverse correlation, rather than empirical. It would be useful to clarify the nature of the evidence underlying the figure here. (Mastrandrea, Michael, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
419	12	12	51	12	52	The opinion on 12.4.1.2 that "climate change risks may be the most significant when they reduce and constrain opportunities" seems to be stating the obvious (especially with the qualifier verb "may"...) (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
420	12	13	3	13	3	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
421	12	13	5	13	6	How does this statement and the discussion that follows intersect with the ES finding on mobility, which characterizes mobility as widely used and often effective? (Mastrandrea, Michael, IPCC WGII TSU)
422	12	13	6	13	8	Just as populations may not be displaced by extreme weather events so people may be attracted to an area that has suffered an extreme climate event. Current research in China provides anecdotal evidence of family members returning to sites that have recently experienced flooding or droughts to help family members and other members of the affected community cope with the effects (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
423	12	13	16	13	20	The description of the table should be clarified, as there are only 2 columns within the table. It seems the intended descriptors are the relevant row numbers instead. (Mach, Katharine, IPCC WGII TSU)
424	12	13	20	13	23	Additionally, climate change may lead to no additional impact on migration depending on the actual phenomena, its severity and the time scale in question. This point should be acknowledged (see also comment 10) (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
425	12	13	21	13	21	But there is no clear evidence on the magnitude of this effect (Bernauer, Thomas, ETH Zurich)
426	12	13	22	13	22	Casual usage of the word "likely" should be avoided, as the term is a reserved likelihood term in the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
427	12	13	25	0	0	The table reproduced at the end of the file does not match the one you describe here. It has only two columns and talks about issues other than mobility outcomes: drought and land degradation; flooding; sea level rise. The table you describe in the text seems to be missing, while the one reproduced at the end seems to belong somewhere else. (Friedrichs, Joerg, University of Oxford)
428	12	13	29	13	35	These studies highlight two important issues: firstly, there is no consistent signal regarding the role of the environment (in fact empirical results can and do pull in opposite directions). Secondly, the actual mechanisms through which the environment manifests itself on migration are only postulated and often explored through proxies thus limiting the analytical and explanatory power of the studies. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
429	12	13	30	13	30	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
430	12	13	30	13	31	12.4.1.2 refers to pioneer migration to urban centres requiring capital and hence restricted to wealthier population. However, what about movement to the ever-expanding slums? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
431	12	13	31	13	31	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
432	12	13	33	13	33	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
433	12	13	35	0	0	Rather than stating that decreased rainfall 'would significantly increase rates of out-migration from rural areas', as one of the authors on the Kniveton et al. (2011) paper referenced, I would be happier either removing 'significantly' or adding 'were simulated to' in place of 'would'. (Smith, Christopher, United Nations University)

#	Ch	From Page	From Line	To Page	To Line	Comment
434	12	13	35	0	0	The Kniveton et al. (2011) paper is followed by a Kniveton et al. (2012) paper that, in the context of Burkina Faso, suggests that climate change-related migration is likely to be highly nonlinear, with the extent of such nonlinearity dependent upon population growth. As such, migration policy interventions that involve demographic and climate change adaptation may be most appropriate. Citation - Kniveton, D.R., C.D.Smith, R.Black, 2012: Emerging migration flows in a changing climate in dryland Africa. Nature Climate Change, 2 pp444-447. http://www.nature.com/nclimate/journal/v2/n6/nclimate1447/metrics (Smith, Christopher, United Nations University)
435	12	13	37	0	49	evidence for 'displacement may initiate new conflict in receiving areas', see Hagenlocher, M., Lang, S. & Tiede, D. (2012): Integrated assessment of the environmental impact of an IDP camp in Sudan based on very high resolution multi-temporal satellite imagery. Remote Sensing of Environment, 126, pp. 27-38. (Zeil, Peter, Center for Geoinformatics Z_GIS Salzburg University)
436	12	13	37	13	49	A reference to the report "Climate change as a security risk" of the German Advisory Council on Global Change (2007) would make sense as it still gives a compact overview on the debate concerning the env. change-migration-conflict nexus (although it is six years old meanwhile) - in particular the part on "Conflict constellation: 'Environmentally induced migration':" (p. 119-122); http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2007/wbgu_jg2007_engl.pdf (Schraven, Benjamin, German Development Institute)
437	12	13	39	13	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
438	12	13	39	13	40	Citation here of Hendrix and Salehyan (2012) is misplaced; they just mention this relationship and cite Reuveny (2007). \nInstead you should cite Buhaug, Gleditsch and Theisen (2010), and Raleigh, Jordan and Salehyan (2008).\nBuhaug, Halvard, Nils Petter Gleditsch, and Ole Magnus Theisen, 2010: Implications of climate change for armed conflict. In Robin Mearns & Andy Norton (eds) Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World. New Frontiers of Social Policy. Washington, DC: World Bank, 75-101. \nRaleigh, Clionadh, Lisa Jordan and Idean Salehyan, 2008: "Assessing the Impact of Climate Change on Migration and Conflict," Paper Prepared for the Social Dimensions of Climate Change, The World Bank. http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/SDCCWorkingPaper_MigrationandConflict.pdf \n (Koubi, Vally, University of Bern)
439	12	13	40	13	41	Though this sentence is true and consistent with the literature, at the same time, some may view this sentence as contradictory with other statements made about climate, resources and conflict and the authors for this reason may consider removing it. (UNITED STATES OF AMERICA)
440	12	13	41	0	0	Citation here of Hendrix and Salehyan (2012) is again misplaced. You should cite the recently published literature reviews on climate change-conflict nexus: Theisen, Gleditsch & Buhaug (2013), Bernauer, Böhmelt & Koubi (2012), or Scheffran et al., (2012).\nScheffran, Jürgen, Michael Brzoska, Jasmin Kominek, Michael Link, and Janpeter Schilling, 2012: Climate change and violent conflict. Science 336(6083): 869-871.\nBernauer, Thomas, Tobias Böhmelt, and Vally Koubi, 2012: Environmental changes and violent conflict. Environmental Research Letters 7(1): 015601 (1-8). \nTheisen, Ole Magnus, Nils Petter Gleditsch, and Halvard Buhaug, 2013: Is climate change a driver of armed conflict? Climatic Change 117(3): 613-625.\n (Koubi, Vally, University of Bern)
441	12	13	42	0	0	Reuveny's study did not focus on Africa. His sample was global with 15 out of the 38 cases examined occurring in Africa. His results are drawn from these 38 cases and not from Africa only. Hence, you should say: "...multiple cases of large scale population displacement from around the world..." \n\n (Koubi, Vally, University of Bern)
442	12	13	44	13	44	The research design of that study is highly problematic. It's results are therefore not reliable and robust. I would be very cautious in refering to any results from that study. (Bernauer, Thomas, ETH Zurich)

#	Ch	From Page	From Line	To Page	To Line	Comment
443	12	13	51	13	51	In place of "some evidence," the chapter team should consider using summary terms for evidence (and agreement) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
444	12	13	51	13	52	The sentence "...vulnerable to labour market discrimination, access to services such as health care and to crime..." sounds a little bit "faulty". It should rather be something like : ".....vulnerable to labour market discrimination, their access to services such as health care is usually poor and they are often victims of crime..." (Schraven, Benjamin, German Development Institute)
445	12	13	52	0	0	Two words are missing. The sentence should read "...labour market discrimination, LACK OF access to services such as..." (UNITED STATES OF AMERICA)
446	12	13	53	13	53	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
447	12	13	53	13	53	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
448	12	14	1	14	0	The fact that migrants move to area where they are more likely to be affected by climate change and weather events is an issue because areas with high migrant populations may be more vulnerable. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
449	12	14	1	14	1	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
450	12	14	2	14	2	Insert 'are' after 'residents'. (Burt, Peter, University of Greenwich)
451	12	14	2	14	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
452	12	14	3	14	3	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
453	12	14	4	14	4	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
454	12	14	8	14	9	Similarly, the statement that "rapid growth of city populations does not drive urban unrest" does not seem to take account of the trend that we see more and more migration (globally) in the form of not only urbanisation but urbanisation in coastal areas, vulnerable to climate change. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
455	12	14	12	14	49	In 12.4.1 you discuss the "Impacts of Climate Change on Displacement, Migration, and Mobility" and under 12.4.1.3. we see "Migration Trends and Long-Term Climate Change". I was surprised not to find any mention of the carbon footprints associated with both migration and resettlement processes. Whilst there may be little or no research in this field, it is important to highlight that there is a potential for future environmental migrants to be a further cause to an increase in GHG emissions. This is important because where planning exists it is imperative that sustainability is paramount, in order to reduce the "Impacts of Migration on Future Climate Change", e.g. relocating 72-184 million people because of sea-level rise cannot - in today's world at least - be a carbon neutral process and we ought to consider this in planning. (de Gusmao, Diogo, Met Office Hadley Centre)
456	12	14	12	14	49	Section 12.4.1.3: It would be helpful to include some discussion or reference discussion from 8.2 in terms of the ability of urban areas to adapt to migration. (UNITED STATES OF AMERICA)
457	12	14	12	14	49	12.4.1.3 migration trends cite Chris Smith's work (Smith, C. (2013) Modeling migration futures: Development and testing of the Rainfalls Agent-Based Migration Model-Tanzania, Climate and Development, Vol. x, No. x, pp. xx-xx) and the work of B.F., Banerjee ICIMOD 2011. (Warner, Koko, United Nations University - Institute for Environment and Human Security)
458	12	14	14	14	15	What is the reference for this first sentence? is this true globally? (UNITED STATES OF AMERICA)
459	12	14	14	14	19	It might be worthwhile to cite Lilleør and Van den Broeck (2011) who provide a critical review of the existing theoretical and empirical research on how climate change and climate variability in Less Developed Countries (LDCs) could affect migration via their effect on personal income. \nLilleør, H.B. and Van den Broeck, K., (2011) Drivers of migration and climate change in LDCs.Global Environmental Change 21. S70–S81.\n (Koubi. Vally. University of Bern)

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460	12	14	14	14	49	Given the previous statements concerning the complexity and difficulty of establishing causal linke between climate change and migration/ displacement, the presentation of projections and modelling results in that section seems a little bit too unreflected and uncritical. (Schraven, Benjamin, German Development Institute)
461	12	14	15	14	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
462	12	14	18	14	18	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
463	12	14	23	14	24	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
464	12	14	25	0	0	there are loads of single country studies. overview matrix by country type of effect, and direction or magnitude effect info would be great here (Bernauer, Thomas, ETH Zurich)
465	12	14	25	0	0	I don't feel like the Kniveton et al (2011) citation is really appropriate here. In the context of the sentence it sounds like it should refer to either Mexico-US or internal Brazilian migration. (Smith, Christopher, United Nations University)
466	12	14	25	14	25	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
467	12	14	25	14	28	It might be worthwhile to mention that the Barrios et al (2007) study reports that rainfall shortages increased rural out-migration only in Sub-Saharan Africa, but not elsewhere in the developing world. (Koubi, Vally, University of Bern)
468	12	14	30	14	30	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
469	12	14	30	14	30	Change 'A' to 'An'. (Burt, Peter, University of Greenwich)
470	12	14	30	14	38	Cross-references to relevant material in Chapter 5 should be provided. Additionally, "likely" on lines 31 and 36 and "very likely" on line 35 should be italicized if the terms are being used following the uncertainties guidance for authors. If not, casual usage of the reserved likelihood term should be avoided. (Mach, Katharine, IPCC WGII TSU)
471	12	14	32	14	32	Change 'metres' to 'm'. (Burt, Peter, University of Greenwich)
472	12	14	33	14	33	Reword sentence 'if all coasts were protected with dikes and beach nourishment' to 'if coasts were protected by dikes and beaches nourished based on a demand for safety' The paper (Nicholls et al. 2011) did not model for dikes on all coasts, rather selected dike building based on population density. (Brown, Sally, University of Southampton)
473	12	14	34	14	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
474	12	14	34	14	36	This may be assumed by Hallegatte et al but in reality many countries have not invested in coastal defences, including in France where investment is up to the local authorities and in the UK where a regional cost-benefit approach was taken and some place e.g.parts of Norfolk the approach is to let the sea take the land rather than invest in defences....what point is being made in this sentence? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
475	12	14	38	14	38	what does affected mean exactly (Bernauer, Thomas, ETH Zurich)
476	12	14	40	14	49	Concept of place attachment could again be used here to explain these perceptions.... Link place attachment to 'culture and identity'. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
477	12	14	45	14	46	the conclusion that 'the impacts of climate change may be more significant driver of future international migration' is too farfetched. One should not make this kind of generalization based on the case of Tuvalu, because international migration is probably the only type of migration available to Tuvalu residents. (Koubi, Vally, University of Bern)
478	12	14	46	14	46	The existing data on climate related migration is so incomplete that it hardly allows for any robust conclusions on how short and long term enviornmental stressors differ in their impact on extent and forms of migration. See the recently presented paper at ISA - San Francisco - by Vally Koubi et al on environmental migration. That study also offers a discussion of the existing data on environmental migration. I would very much welcome a strong statement here stressing the need for much better household level data on environmental migration (Bernauer, Thomas, ETH Zurich)

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479	12	14	47	0	48	Past migration flows are the greatest predictors of future flows in what sense? Authors should explain further--is this spatially, in terms of where new migrants will settle, or something else? (UNITED STATES OF AMERICA)
480	12	15	1	15	1	This is gegeral comment: the term value has been used many times in the chapter. Again, it is unclear what the authors mean by the notion of value and whetehr they endorse a specific school here. This could for instance been interesting to add when they discuss migration (for instance in 12.4.2). See for instance the discussion of Peter Cannavo on the fundamental value of 'home' and 'place' in Cannavo, P. 2008. In the Wake of Katrina. In Political Theory and Global Climate Change, edited by S. Vanderheiden. Cambridge: MIT Press: 177-200. The concept of 'value' deserves more attention when we discuss human security. \n\n (NETHERLANDS)
481	12	15	1	16	11	We appreciate the inclusion of a separate section 12.4.2 on "migration as an adaptation to climate change impacts" and the statement in box 12-4 that "the term climate refugees is not meaningful". (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
482	12	15	3	15	6	China has recently began to relocate communities considered to be living in marginal environments that are becoming uninhabitable due to climate change. This relocation policy is badged as adaptation to climate change and may be worth including in this section. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
483	12	15	3	15	11	This section raises concerns regarding the potential for interventions such as these to "do harm" in conflict-affected and fragile situations where economic and political power balances, for example, could be affected. This section should apply a warning that such interventions should be undertaken in a conflict sensitive manner, applying the best available conflict analysis to inform program and policy design and implementation. Refer to the OECD DAC's Principles for Good International Engagement in Fragile States and Situations. (UNITED STATES OF AMERICA)
484	12	15	3	16	9	In the introductory section four areas of government intervention are mentioned. But the rest of the text virtually deals only with resettlement and legal protection. A little bit more on the other areas of government intervention would be desirable. Furthermore, a conclusion on the presented discussion of options for legal protection of "environmental/ climate refugees" would be nice. (Schraven, Benjamin. German Development Institute)
485	12	15	5	15	6	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
486	12	15	5	16	5	Change 'internal' to 'internally' (Burt, Peter, University of Greenwich)
487	12	15	7	15	7	Cash Transfers as the only example of a social protection mechanism seems too specific. There need to be more examples or this specific example should be cut. (UNITED STATES OF AMERICA)
488	12	15	11	0	0	Add 'Despite these various potential benefits and impacts of migration, little is known about the specific role of migration in the context of adaptation to climate-related stressors. Whilst financial remittances may be spent on both structural and non-structural adaptation measures to reduce household vulnerability to environmental hazards, it is far from clear what circumstances – social, political or economic – are most propitious for this kind of spending. There are knowledge gaps in terms of the conditions that make it most likely for social remittances to play a positive role in building adaptation specifically to climate change. ' Citation Banerjee, Soumyadeep, Richard Black, Dominic Kniveton (2012) Migration as an effective mode of adaptation to climate change. This paper was commissioned by Foresight as a contribution to European Commission policy reflection on climate change and migration. Foresight: HM Government. (Molden, David, International Centre for Integrated Mountain Development (ICIMOD))
489	12	15	13	0	0	Suggest changing to "thawing permafrost". (CANADA)

#	Ch	From Page	From Line	To Page	To Line	Comment
490	12	15	13	15	25	Consider adding a reference to and synopsis of governance challenges identified in Bronen, R. and Chapin, F.S., Adaptive governance and institutional strategies for climate-induced community relocations in Alaska, Proceedings of the National Academy of Sciences, May 20, 2013, http://www.pnas.org/content/early/2013/05/16/1210508110.full.pdf+html , doi:10.1073/pnas.1210508110 (Bronen, Robin, University of Alaska)
491	12	15	15	15	15	Biermann. Boas 2012: "Climate Change and Human Migration: Towards a Global Governance System to protect climate refugees", in: Scheffran et al. 2012a: 291-300. (Brauch, Hans Guenter, Free University of Berlin)
492	12	15	15	15	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
493	12	15	16	15	17	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
494	12	15	18	15	18	See e.g. ; Vol. 16: Suwattana Thadaniti (Ed.): The Impact of Displaced People's Temporary Shelters on their Surrounding Environment (Heidelberg – Dordrecht – London – New York: Springer-Verlag, 2014). (Brauch, Hans Guenter, Free University of Berlin)
495	12	15	18	15	18	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
496	12	15	19	15	19	Understanding why people do not displace in extreme weather events is just as important as why people do displace and how. Policy measures should be focused also on these 'trapped populations', identified in the recent EU strategy on climate change adaptation , 16.4.2013 SWD(2013) 138 final. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
497	12	15	25	15	25	Move '(' to after 'Marino' and delete comma. (Burt, Peter, University of Greenwich)
498	12	15	29	15	29	Box 12-4 I was not sure whether this was the right title for the box. The text mostly covers issues related to international policy and climate refugees rather than whether these refugees exist or not which the title suggests (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
499	12	15	31	0	44	This information is not pertinent to the topic of security. There is no reason to include the background arguments about appropriately classifying people as migrants vs. refugees (or, if there is a reason, it needs to be clarified) (UNITED STATES OF AMERICA)
500	12	15	31	16	9	As mentioned in one of my comments on the chapter as a whole, it seems to me that you are sometimes presenting your own "critical" views while not allocating enough space to the views criticized. Here, for example, you devote ample space to literature critical of the notion of "climate refugees" while hardly devoting any space to those who have introduced that notion in the first place. While this is fairly common in social scientific circles, in the context of an IPCC report it is problematic because critics may then accuse you of being biased. (Friedrichs, Inerg, University of Oxford)
501	12	15	33	15	34	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
502	12	15	33	15	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
503	12	15	44	15	44	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
504	12	15	48	15	49	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
505	12	16	0	0	0	This sub-section 12.5 would be enriched by adding the following article: Etienne Piguet (2012): From "Primitive Migration" to "Climate Refugees": The Curious Fate of the Natural Environment in Migration Studies, Annals of the Association of American Geographers, DOI:10.1080/00045608.2012.696233 (Afifi, Tamer, United Nations University Institute for Environment and Human Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
506	12	16	0	18	0	The diverse putative causal connections between climate change and the onset of violence could be conceptually sketched out in more detail before evidence is presented. First, there are direct (temperature, drought, volatile rains, floods, extreme weather events, changes in borders) and indirect pathways to violence (through migration, economic growth, food production/prices). The kinds of violence that could result include inter-state violence, civil wars, subnational conflict, and riots/strikes. Most but not all of these items are discussed in detail, but new work on the indirect pathways to violence, particularly related to food production/food prices and the emergence of conflict are not mentioned. Cullen Hendrix's work for the FAO and World Bank is relevant (the FAO piece linked below is forthcoming in peer reviewed outlet). Other relevant work by Marc Belemare and Todd Smith. , http://www.fao.org/fileadmin/templates/cfs_high_level_forum/documents/FI-ConflictDynamics-Hendrix_Cullen.pdf , http://www.strausscenter.org/ccaps/publications/research-briefs.html?download=151 , http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2107132 (Joshua, Busby, University of Texas-Austin)
507	12	16	16	17	27	This section does a good job at recognizing that there is no single cause of armed conflict and that climate change (or resource scarcity) is no exception to this rule, while still recognizing that climate variability and environmental change has contributed to conflict in the past. Suggest keeping this balance through out the rest of the section (UNITED STATES OF AMERICA)
508	12	16	16	18	50	12.5.1 This section should draw on the literature coming out of the "CLICO" project supported by the European Union. This project has undertaken case studies examining the relationship between climate change, water, and conflict at different levels and focuses on "differentiated" adaptive capacity--finds that the underlying social structures that ameliorate conflict are under increasing pressure from climatic stressors and how they interact with societies (like in Niger, Mediteranean region, etc.) (Warner, Koko, United Nations University - Institute for Environment and Human Security)
509	12	16	18	0	0	There should be some clear definitions offered for conflict at the start of this section. The definitions developed by the Uppsala Conflict Data Program have become standard in the field, so I would suggest using those (or, at least, using close adaptations). (UNITED STATES OF AMERICA)
510	12	16	18	0	38	This section makes grand claims with very few citations Resource scarcity rarely escalate[s] to violence, and violent conflict itself has generally become less common and less intense since 1991 is not necessarily true and depends entirely on which metric is being used. Two citations are not sufficient to make a claim of this size. This whole section needs significantly more research. (UNITED STATES OF AMERICA)
511	12	16	18	16	20	it would be better and more accurate if you say that research investigates the relationship between climate change and violent conflict (the one-way causal effect of climate change on conflict), rather than their interaction. Note that interaction refers to the process by which different things affect each other or change each other. (Koubi, Vally, University of Bern)
512	12	16	18	16	21	In addition to the cited references discussing the possible role of climate change in conflict, the 2009 UNEP report "From Conflict to Peacebuilding: the Role of Natural Resources and the Environment" provides valuable insight and should be cited. This report states that over that past sixty years, forty percent of all intrastate conflicts have a link to natural resources. Although the report includes non-climate related resources (minerals, oil, etc.), it does explore the potential consequences of climate change for water availability, food security, and prevalence of disease. Furthermore, it implicates natural resources in all phases of conflict from contributing to the outbreak to undermining prospects for peacebuilding. (UNITED STATES OF AMERICA)
513	12	16	18	16	27	This section should define "conflict". Currently the text moves haphazardly between discussions of violent and non-violent conflict and between inter-communal and state violence. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
514	12	16	18	19	34	Within this section there is a complete change in the style of citing in-text references. I have not listed these individually, they are too numerous, but the section needs a careful proof check, and I am concerned to see these discrepancies at this stage. Also, for consistency elsewhere, et al. needs to be in italics. (Burt, Peter, University of Greenwich)
515	12	16	19	16	20	Delete "reflecting policy discourses that climate change impacts and resource scarcity could escalate conflict risks". There is no analytical benefit in mentioning this. (Ide, Tobias, Research Group Climate Change and Security)
516	12	16	20	15	20	add ... escalate conflict risks (Homer-Dixon 1999, 2001, 2006) Homer-Dixon, Thomas F., 1999: Environment, Scarcity, and Violence (Princeton, NJ: Princeton University Press); Homer-Dixon, Thomas F., 2001: The Ingenuity Gap (New York -Toronto: Alfred A. Knopf); Homer-Dixon, Thomas F., 2006: The Upside of Down: Catastrophe, Creativity and the Renewal of Civilization (Washington D.C.: Island Press). The chapter only cites the critics of this view. This discussion is highly contested in the environmental security literature. However, the cases of Homer-Dixon(1999) did not refer to climate change. (Brauch, Hans Guenter, Free University of Berlin)
517	12	16	20	16	20	Delete comma after 'markets' (Burt, Peter, University of Greenwich)
518	12	16	20	16	21	How exactly will climate change "bring groups of people into conflict over [...] markets"? I did not understand that, so maybe some explanation and references (in the best case: both) seem necessary. (Ide, Tobias, Research Group Climate Change and Security)
519	12	16	20	16	21	Conflicts will not only be about "public goods", but also over private goods (consider e.g. privatized water sources, cattle/food owned by individuals and/or the state which are is stolen during raids etc.). (Ide, Tobias, Research Group Climate Change and Security)
520	12	16	20	16	21	Climate change could by exacerbating resource scarcity lead to conflict. But it is not clear to me why 'changes in climate will bring groups of people into conflict over property rights, markets, and public goods'. Elsewhere (and repeatedly) in this chapter you state that institutions including property rights could mitigate the effects of climate change on conflict. Hence the meaning of this sentence is not clear. You also need to provide reference for this statement. (Koubi, Vally, University of Bern)
521	12	16	20	16	21	Declarative verb probably not appropriate here and should be changed to "Changes in climate MAY bring groups of people into conflict over property rights, markets and public goods".. (not WILL). (UNITED STATES OF AMERICA)
522	12	16	20	16	21	"Changes in climate will bring groups of people into conflict over property rights, markets, and public goods" Change : Will => Can Note: page 18, line 4.5 on Darfur: "... studies dispute the identification of the Darfur conflict as being caused by climate change, arguing that attributing this conflict to CC masks the culpability of actors and the major drivers of insecurity" (Halonen, Mikko, Gaia Consulting Ov)
523	12	16	21	16	21	Where "evidence" is mentioned, the chapter team should consider using summary terms for evidence (and agreement) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
524	12	16	21	16	22	Since the circumstances under which resource scarcity drivers innovation and adaptation are indeed quite specific, and since adaption and innovation can themselves become relevant factors for violent conflict onset, evidence about adaptation and innovation as consequences of resource scarcity do not SET OF the risk of violent conflict as a consequence of resource scarcity. (Ide, Tobias, Research Group Climate Change and Security)
525	12	16	22	16	24	These claims about resource scarcity and violence should be specific as to the type of violent conflict being referenced (presumably, large scale and sustained violence such as civil war and interstate war) (Conca, Ken, American University)

#	Ch	From Page	From Line	To Page	To Line	Comment
526	12	16	22	16	24	This statement needs to be qualified, as it is certainly not one of fact. It should read along the following lines: "There is also evidence that resource scarcity does not necessarily escalate to violence, and that violent conflict itself has generally become less common and less intense since 1991". Furthermore, to balance that statement, a statement or statements referencing evidence that natural resources can have a relationship with conflict should be included. For example, see the 2012 Special Issue "Climate Change and Conflict" from the Journal of Peace Research, for a number of case studies which do find some statistically-significant correlations between climate change, resource scarcity and violence (most of it intra-state and communal - eg conflict between pastoralists and agriculturalists, etc). Furthermore, see the UNEP report "From Conflict to Peacebuilding: the Role of Natural Resources and the Environment," which finds 18 conflicts since 1990 linked to natural resources. http://www.unep.org/publications/search/pub_details_s.asp?ID=3998 (UNITED STATES OF AMERICA)
527	12	16	24	0	0	What is the meaning of 'risks between climate change and conflict'? If you refer to the possibility that climate change increases the risk of conflict, please rewrite the sentence. (Koubi, Vally, University of Bern)
528	12	16	25	16	25	Text unclear: what do you mean by 'This Chapter'? Grammatically you are referring to Chapter 19, but are you implying Chapter 12? (Burt, Peter, University of Greenwich)
529	12	16	25	16	27	Again, the term 'interaction' is inappropriate. Researchers, at least until now, are interested in establishing a one-way causal effect of climate change on conflict, that is whether climate change affects the likelihood of conflict and revealing the exact pathways through which climate change does so. (Koubi, Vally, University of Bern)
530	12	16	25	16	27	For this conclusion, it would be preferable to provide calibrated uncertainty language to summarize the author team's degree of certainty in the statement. (Mach, Katharine, IPCC WGII TSU)
531	12	16	29	0	44	The conclusions from Butzer 2012 study seem to be overstated in relation to the other studies. "This evidence from historical antecedents cannot be taken to mean future changes in climate will lead to large-scale political collapse due to diverse changes and globalization in the contemporary world (Butzer 2012)." This same section, lines 42-44, goes on to describe how these historical studies can be taken to show the connection between climate change and political disruption (29-30). It is not clear why the authors choose to emphasis in lines 29-30 that these studies "cannot be taken to mean" anything. The emphasis really should be on how these studies should not be ignored, as they can provide important tools for building resiliency for a future that climate science has already shown, with a high degree of certainty, will be quite extreme (see the Synthesis 12.7 (3-4) conditions in most places that in will be without any precedent in human history (New, M., D. Liverman, H. Schroder, and K. Anderson, 2011: Four degrees and beyond: the potential for a global temperature increase of four degrees and its implications. Philosophical Transactions of the Royal Society A, 369(1934).The emphasis would be better placed on noting that while adaptation and modern ingenuity may lessen the degree to which climate change can be linked to political disruption, historical antecedents are still important. (UNITED STATES OF AMERICA)
532	12	16	29	16	29	Where "a modest amount of research" is described, the chapter team should consider using summary terms for evidence (and agreement) to communicate its assessment. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
533	12	16	29	16	38	I suppose that you are dismissive of this literature because the circumstances of ancient civilizations seem so different from the current human condition. However, this may be precisely the reason why that literature deserves more attention. We simply do not have any adequate proxies to study climate change in the modern era, and industrialization provides various social buffers that for a while can shield us off from the adverse effects of climate change. Once these buffers have been eroded, however, it may turn out that the closest parallel to what we will be facing is precisely historical patterns of climatic stressors spurring premodern societies either to become more complex or leading to their demise. For an extensive discussion of the literature on ancient Mesopotamia and the medieval Norse Settlements in Greenland and Iceland, see Jörg Friedrichs (2013) The Future Is Not What It Used to Be: Climate Change and Energy Scarcity, Cambridge, MA: MIT Press (pp. 60-71). The galley is available from wg2-ar5-supportingmaterial@ipcc.wg2.gov. It's a PDF, and the file name is "Friedrichs 2013". The book will appear on 9 August this year, and I'm asking you to use the galley only for your report and not to circulate it. (Friedrichs, Joerg, University of Oxford)
534	12	16	29	16	38	A point to be emphasized here is that changes in climate and natural resource can result in violent conflicts and there is evidence of this from historical records of society collapse which highlight this. The situation is different now for many reasons including globalisation as is mentioned but what to note is that climate change can cause changes in the distribution of natural resources which can affect human security. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
535	12	16	29	16	44	As you notice in lines 36-38, the conclusions one can draw from past climate-violence links for today and the future is extremely limited. I thus suggest to shorten the two paragraphs on it. (Ide, Tobias, Research Group Climate Change and Security)
536	12	16	37	16	42	Most historical cases refer to cases of climate variability and not to the impact of anthropogenic climate change. Therefore projections from these cases to the future must be taken with utmost care. (Brauch, Hans Guenter, Free University of Berlin)
537	12	16	40	0	0	Define Little Ice Age. (UNITED STATES OF AMERICA)
538	12	16	40	16	40	What are inconsistent political institutions? "unstable" may be a better term!! (Brauch, Hans Guenter, Free University of Berlin)
539	12	16	40	16	44	So, you have five studies that conclude that cold increases violence. Why do you suppress this in the summary? (Tol, Richard S.J., Vrije Universiteit Amsterdam)
540	12	16	42	0	0	So far, the whole discussion is on violent conflict as a (potential) cause of climate change... (Bernauer, Thomas, ETH Zurich)
541	12	16	46	0	51	While there is little research about conflict between states, there are numerous studies showing conflict and climate change on a sub-state scale. See the Journal of Peace Research special Climate Change Volume (January 2012; 49 (1)). (UNITED STATES OF AMERICA)
542	12	16	47	16	47	Casual usage of the word "unlikely" should be avoided, as the term is a reserved likelihood term in the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
543	12	16	50	0	51	The statement "All studies show" is incorrect and cannot be given any weight, especially given that there is no citation. Either delete or clarify and provide additional references. (UNITED STATES OF AMERICA)
544	12	16	50	16	51	It are not only robust institutions, but also power asymmetries and a bad cost-value ratio that can explain the absence of environment-related violent conflict between states. See, for instance: \nSelby, Jan (2005): The Geopolitics of Water in the Middle East. In: Third World Quarterly 26(2), 329-349.\nZeitoun, Mac/Warner, Jeroen (2006): Hydro-hegemony. In: Water Policy 8(5), 435-460. (Ide, Tobias, Research Group Climate Change and Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
545	12	16	52	0	0	The claim that war between states is increasingly rare needs more than one citation or should be deleted, and at least re-characterized. This statement is not necessarily true and depends entirely on which metric is being used. (UNITED STATES OF AMERICA)
546	12	17	1	0	0	There should be some language here making it clear that the causal drivers for armed conflict (armed contests between organized groups) are different from violent crime. The points made in this paragraph are very important. It is important also to distinguish armed conflict from criminality. (UNITED STATES OF AMERICA)
547	12	17	1	0	12	What definition are they using for violent crime? What about fragility and other conflict indicators beyond crime? Why is there so much emphasis on the studies related only to temperature? Temperature increase is only one part of climate change. As the next paragraph (15-27) explains factors such as changes in rainfall variability, not just temperature are linked with increases in conflict. Table 12.1 also outlines the first and second order affects of climate change on human security. If this chapter is going to devote an entire paragraph to temperature, then it should provide the same for other climate factors (i.e., precipitation) if it is available. If such information is not available then it should be listed in a new section on research gaps and needs. (UNITED STATES OF AMERICA)
548	12	17	1	0	13	This section is inconclusive and does not add to the thesis of the chapter. Is an increase in temperature associated with an increase in violent crime? It is unclear based on this paragraph. Clarify or delete. (UNITED STATES OF AMERICA)
549	12	17	1	17	13	Given the length of the paragraph: Is crime a form of violent conflict? If yes, what is your definition of violent conflict? If no, why is it still important to incorporate evidence on it (in such a relatively extensive matter) in the AR5? (Ide, Tobias, Research Group Climate Change and Security)
550	12	17	7	17	7	the argument jumps around different forms of violent conflict. The discussion should be more careful in presenting the evidence for climate impacts on specific forms of violent conflict. (Bernauer, Thomas, ETH Zurich)
551	12	17	9	17	9	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
552	12	17	10	0	11	May be true re violent crime, but is there an association between riots and high heat days? I am way out of date with this literature, and perhaps the idea has been debunked, but some decades ago in the psychology or sociology literature a correlation was recognised between extreme heat days and incidence of riots. It might be worth checking this, order to give this sentence more sophistication. I just ran the search terms 'heat waves riots' through Google scholar and had quite a few hits. (page 18, lines 14-18 are an alternate appropriate place for this point). (Ross, Helen, The University of Queensland)
553	12	17	10	17	10	Insert 'that' after 'identify' (Burt, Peter, University of Greenwich)
554	12	17	15	0	28	Most literature on this topic does not assert that climate change is the primary driver of civil wars. The literature is usually focused on climate change acting as stress or threat multiplier, increasing the stresses that can increase the probability of conflict. This is an important point about how climate change and human security interacts, and the nuance between the two are underplayed throughout this chapter and should be more clearly articulated. (The link to a study on Somalia Famine showing links to climate change and the nuanced interactions between climate change and unrest http://www.theprovince.com/business/Climate+change+have+played+role+Somalias+famine+study/8109385/story.html). (UNITED STATES OF AMERICA)
555	12	17	15	17	16	The statement that most of the existing research focuses on climate change and civil war is incorrect, if civil war is defined here as more than 1000 Battle Deaths. Most studies use both 25 (civil conflict) and 1000 (civil war) Battle Deaths. It would be better if the term 'armed conflict' or 'violent conflict' was used instead of 'civil war'. (Koubi, Vally, University of Bern)

#	Ch	From Page	From Line	To Page	To Line	Comment
556	12	17	17	17	18	Burke et al (2009) is not the only study that examines the relationship between temperature and violent conflict. Devitt & Tol (2012), Theisen et al. (2012), Koubi et al (2012), Miguel et al (2004) also operationalize climate change with temperature. \nDevitt, Conor and Richard S J Tol, 2012: Civil war, climate change and development: A scenario study for Sub-Saharan Africa. Journal of Peace Research 49(1): 129-145\n (Koubi, Vally, University of Bern)
557	12	17	17	17	19	Burke et al. (2009) do not only "examine", but (and that is more relevant, I guess) support the link between warming and violent conflict. (Ide, Tobias, Research Group Climate Change and Security)
558	12	17	19	17	19	see also Koubi et al. in JPR, which shows that not even an indirect effect exists. The other studies all focus on direct effects (which are theoretically very unlikely with a view to what the environmental security literature tells us. (Bernauer, Thomas, ETH Zurich)
559	12	17	20	0	0	The significance of Hisang et al. (2011) lies precisely in the fact that, while most other literature on climate change and violent conflict deals with short-term cataclysmic episodes rather than chronic stressors, i.e. is about weather rather than climate change proper, this article looks at a systematic pattern of multiannual climatic changes. The same is even more true about the piece by Zhang et al. (2011), which is cited in your reference list. It is true that in Zhang et al. (2011) there are serious data limitations, but the piece is as good as it gets if you want to study a real proxy for climate change rather than trying to make extrapolations from cataclysmic local episodes. Also have a look at the previous piece by Zhang et al: Zhang, David D., Peter Brecke, Harry F. Lee, Yuan-Qing He, and Jane Zhang (2007) Global climate change, war, and population decline in recent human history, PNAS 104 (49): 19214-19219. (Friedrichs, Joerg, University of Oxford)
560	12	17	20	17	21	This does not make sense. There are global teleconnections to ENSO for almost all countries,. Please check the sense of what you are trying to say. (Burt, Peter, University of Greenwich)
561	12	17	21	17	23	The studies of Hendrix/Salehyan (2012) and Raleigh/Kniveton (2012) also confirm at link between rainfall extremes and violent conflict (although not: civil war) and are more up-to-date than the ones of Miguel et al. (2004) and Hendrix/Glaser (2007). I suggest to include them:\nHendrix, Cullen/Salehyan, Idean (2012): Climate, Rainfall, and Social Conflict in Africa. In: Journal of Peace research 49(1), 35-50.\nRaleigh, Clionadh/Kniveton, Dominic (2012): Come Rain or Shine. In: Journal of Peace research 49(1), S. 51-64. (Ide, Tobias, Research Group Climate Change and Security)
562	12	17	22	17	23	add reference to Hendrix and Salehyan (2012). (Koubi, Vally, University of Bern)
563	12	17	24	0	25	To the sentence, "Examination of individual conflict shows that there is no prospect of identifying specific civil wars as being primarily driven by climate, this does not mean that climate is not a contributing factor to civil war. The sentence should be deleted or citations provided. (UNITED STATES OF AMERICA)
564	12	17	24	17	24	see also Koubi et al. 2012 in JPR (Bernauer, Thomas, ETH Zurich)
565	12	17	25	17	27	Since box 12-5 argues that desertification and increasing aridity was one among several factors relevant in the darfur case (an argument I support), you may write "with no studies concluding that the conflict was MAINLY climate driven". (Ide, Tobias, Research Group Climate Change and Security)
566	12	17	29	18	7	Box 12-5: This section is unclear. P. 18 line 4 should be changed from "Darfur conflict as being caused by climate change" to something like "Darfur conflict as being aggravated by climate change" and the text on p. 18, lines 4-5 ought to be brought to the beginning of the box. Additionally, the sentence goes on to claim that "attributing this conflict to climate change masks the culpability of actors and the major drivers of insecurity," but in lines 39-50 on p. 17, two of the six causes of the violence listed are linked to climate (and therefore will/ are being impacted by climate change).\nThe authors ought to carefully choose the language to describe this relationship. The difference between "causing" and "aggravating" or "contributing to" needs to be clarified. Finally, the box itself should be retitled to something like "The multiple causes of conflict in Darfur" (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
567	12	17	31	18	7	This is another example where you seem to privilege your own critical views without giving a fair hearing to the views criticized. See my related comments on page 15 line 31 to page 16 line 9, and on the chapter as a whole. (Friedrichs, Joerg, University of Oxford)
568	12	17	49	17	50	How can desertification be a cause of the Darfur conflict when rainfall had been increasing for almost 20 years before it started in 2003 and the Darfur and the Sahel in general were greening (Kevane and Gray 2009, Olsson 2012 (http://www.eoearth.org/article/Greening_of_the_Sahel)) (Benjaminsen, Tor A., Norwegian University of Life Sciences)
569	12	17	50	17	50	References should be in chronological order (and alphabetical order in the years). (Burt, Peter, University of Greenwich)
570	12	17	50	17	50	Move block of references up to line 38, after 'notably'. (Burt, Peter, University of Greenwich)
571	12	17	51	0	0	A similar case can be found with the Boko Haram terrorism in Northern Nigeria due, in part, to widespread poverty (Adetoro, 2012) being fuelled by drought and desertification.\n\n[Adetoro Rasheed Adenrele. Boko Haram insurgency in Nigeria as a symptom of poverty and political alienation \nIOSR Journal Of Humanities And Social Science (JHSS) ISSN: 2279-0837, ISBN: 2279-0845. Volume 3, Issue 5 (Nov. - Dec. 2012), PP 00-00 Www.iosrjournals.Org]\n (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
572	12	18	9	18	10	It may be clear to more directly indicate the scope of the evidence meant in the sentence. (Mach, Katharine, IPCC WGII TSU)
573	12	18	10	18	10	What level of agreement in calibrated terms is intended here? (Mastrandrea, Michael, IPCC WGII TSU)
574	12	18	10	18	12	It are consistent respectively consolidated institutions (no matter whether they are democratic or autocratic) rather than merely democratic institutions that reduce the risk for violent conflict. From a normative perspective, I would also like to argue for consolidated democratic institutions, but the literature points to consistency rather than democracy as the relevant factor. See, for instance:\nHegre, Håvard et al. (2001): Toward a Democratic Civil Peace? In: American Political Science Review 95(1), 33-48.\nDixon, Jeffrey (2009): What Causes Civil War? In: International Studies Review 11(4), 707-735.\nHegre, Håvard/Sambanis, Nicholas (2006): Sensitivity Ananylsis of Empirical Results on Civil War Onset. In: Journal of Conflict Resolution 50(4), 508-535. (Ide, Tobias, Research Group Climate Change and Security)
575	12	18	11	18	11	Also, for two crucial causal pathways the evidence is negative or unclear: climate to conflict via economic crisis, climate to conflict via migration (Bernauer, Thomas, ETH Zurich)
576	12	18	14	0	0	Communal violence is not necessarily smaller scale. The authors should consider re-phrasing to "...between climate variability and violent internal conflict between communities (i.e. inter-communal conflict)." (UNITED STATES OF AMERICA)
577	12	18	14	18	20	Two of my own publications could also be added to the second list of references here: Benjaminsen, T. A., F. Maganga and J.M. Abdallah. The Kilosa killings: political ecology of a farmer-herder conflict in Tanzania. Development and Change 40 (3): 423-445. and Benjaminsen, T. A. and B. Ba. Farmer-herder conflicts, pastoral marginalization, and corruption: a case study from the inland Niger delta of Mali. The Geographical Journal 175 (1): 71-81. (Benjaminsen, Tor A., Norwegian University of Life Sciences)
578	12	18	14	18	20	This paragraph could be longer, since it describes the climate-violence-link on which most research has been conducted yet (small-scale violence in Sub-Saharan African due to rainfall changes) and which also seems to be the most supportive case. However, while authors such as Hendrix/Salehyan (2012) provide support for a scarcity link, Adano et al. (2012) argue for a resource abundance link. This differences are crucial when it comes for general conclusions about climate-conflict-links and recommended policies, but are not discussed at all here. (Ide, Tobias, Research Group Climate Change and Security)

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579	12	18	17	18	19	As far as I know, precisely the attempt to enforce property rights is a driver of (also violent) conflict in contexts where the 'western' concept of property is not widely acknowledged. See, for instance, the literature on land grabbing, land privatization and biofuels/monoculture expansion in Latin Americam, Sub-Saharan Africa or Southeast Asia. Especially in the executive summary, the IPCC WGII should be very careful when dealing with property rights, since they can (dependent on how, by whom and in which context they are introduced/strenghtend) aggravate or reduce the risk for violent conflict. (Ide, Tobias, Research Group Climate Change and Security)
580	12	18	22	18	23	it would be worthwhile to mention 'income' or 'economic growth' here as a climate affected factor that could lead to conflict. (Koubi, Vally, University of Bern)
581	12	18	24	18	28	In light of the recent empirical literature you should also mention political marginalization and grievances as important determinants of civil conflict onset and cite relevant literature (Grievances and political marginalization could also play an important role in the climate change-migration-violent conflict nexus). \nBuhaug, Halvard, Lars–Erik Cederman & Kristian Skrede Gleditsch (forthcoming) Square pegs in round holes: Inequalities, grievances, and civil war. International Studies Quarterly.\nCederman, Lars–Erik, Nils B Weidman and Kristian Skrede Gleditsch, 2011: Horizontal inequalities and ethonationalist civil war: A global comparison. American Political Science Review 105(3): 478–495. \nBuhaug, Halvard; Lars–Erik Cederman & Kristian Skrede Gleditsch (forthcoming) Square pegs in round holes: Inequalities, grievances, and civil war. International Studies Quarterly.\nBuhaug, Halvard, Kristian Skrede Gleditsch, Helge Holtermann, Gudrun Østby and Andreas Forø Tollefsen, 2011: It's the local economy, stupid! Geographic wealth dispersion and conflict outbreak location. Journal of Conflict Resolution 55(5): 814–840.\n\n(Koubi, Vally, University of Bern)
582	12	18	25	18	25	This should be "high agreement" rather than strong, in calibrated terms. (Mastrandrea, Michael, IPCC WGII TSU)
583	12	18	26	18	26	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
584	12	18	31	0	0	With the exception of economic conditions, food insecurity, and migration, there are not that many factors that could increase the risk of civil war and are sensitive to climate change. (Koubi, Vally, University of Bern)
585	12	18	31	18	32	The phrase "robust evidence" should be italicized. (Mach, Katharine, IPCC WGII TSU)
586	12	18	32	18	32	there is no robust evidence that climate change has a bad effect on economic performance in richer countries (Bernauer, Thomas, ETH Zurich)
587	12	18	32	18	32	'per capita' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
588	12	18	32	18	34	Given that the findings from statistical studies suggest that a) the effects of climate change on economic growth depend a lot on the climate indicators, and country and time samples used in the econometric analyses, and b) climate change will produce economic winners and losers you should say that 'there exists some evidence' rather than 'there is robust evidence' that climate change will slow rates of economic growth. For example, while Deschenes and Greenstone (2007) report that temperature increases will lead to a 4% (\$1.3 billion in 2000 dollars) increase in annual agricultural sector profits in the USA, Barrios et al (2010) show that climate, measured as changes in country-wide rainfall and temperature, has been a major determinant of agricultural production in Sub-Saharan Africa. In contrast, Non Sub-Saharan Africa countries appear not to be affected by climate in the same manner. Dell, Jones and Olken (2012) show that higher temperatures have large negative effects on growth, but only in poor countries, whereas precipitation has no effect. Finally, even IAM models differ on whether low levels of global warming would have positive or negative global effects. Nordhaus and Boyer (2000) and Mendelsohn et al (2006) show that there are winners (Canada or Siberia) and losers (Africa again).\nDeschenes, Oliver and Michael Greenstone. 2007; The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather. American Economic Review 97(2): 354-385.\nBarrios, Salvador, Luisito Bertinelli, and Eric Strobl, 2010: Trends in Rainfall and Economic Growth In Africa: A Neglected Cause of the African Growth Tragedy. Review of Economics and Statistics 92(2): 350-366\nDell, Melissa, Benjamin F. Jones, and Benjamin A. Olken. 2012. "Temperature Shocks and Economic Growth: Evidence from the Last Half Century." American Economic Journal: Macroeconomics, 4(3): 66-95.\nMendelsohn, Robert; Ariel Dinar & Larry Williams (2006) The distributional impact of climate change on rich and poor countries. Environment and Development Economics 11(1): 159-178.\nNordhaus, William & Joseph Boyer (2000) Warming the World: The Economics of Greenhouse Effect. Cambridge, MA: MIT Press.\n(Koubi, Vally, University of Bern)
589	12	18	33	18	33	Capital 'C' required for 'chapter' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
590	12	18	34	18	34	what does consistent mean here (Bernauer, Thomas, ETH Zurich)
591	12	18	39	18	39	The phrase "limited evidence" should be italicized. (Mach, Katharine, IPCC WGII TSU)
592	12	18	42	0	50	This finding is contested and an alternative phrasing could be: "However, confident statements about the effects of future changes in climate on violence of any kind are not possible given the absence of generally supported theories and evidence about causality (see Box 12-5)." There are plenty of studies (cited in this chapter - including the Journal of Peace Research Special Issue) showing connections between climate change and violence, and these studies provide compelling evidence that these connections will be important as the climate continues to change. (UNITED STATES OF AMERICA)
593	12	18	43	18	43	Should be "Scheffran" (Bernauer, Thomas, ETH Zurich)
594	12	18	43	18	43	Sceffran should read "Scheffran" (Webersik, Christian, University of Agder)
595	12	18	43	18	45	which of these factors are sensitive to climate change ¹ (Bernauer, Thomas, ETH Zurich)
596	12	18	43	18	47	Correct "Sceffran" and "Sheffran" to "Scheffran" (Scheffran, Jürgen, University of Hamburg)
597	12	18	45	18	45	change, should read "change." (Webersik, Christian, University of Agder)
598	12	18	47	0	0	Be explicit that "institutions" includes both formal and informal institutions. (UNITED STATES OF AMERICA)
599	12	18	47	18	47	Sceffran should read "Scheffran" (Webersik, Christian, University of Agder)
600	12	18	48	18	48	the language on how certain specific effects are jumps around quite a lot. here it is noconfidence...in other places ... (Bernauer, Thomas, ETH Zurich)
601	12	18	48	18	48	Ensure consistent spelling of "Scheffran" (Bernauer, Thomas, ETH Zurich)

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602	12	18	48	18	50	In addition to the lack of generally supported theories and evidence about causality, there are also several studies which do not find any significant correlations or connections between environmental changes and violent conflicts. (Ide, Tobias, Research Group Climate Change and Security)
603	12	19	0	0	0	The potential for reactions to climate change on mitigation and adaptation to generate controversy and conflict over resources is apt and important. (Joshua, Busby, University of Texas-Austin)
604	12	19	0	19	0	The first and second paragraphs of this section are missing the broader context of how human security will be impacted as the world's climate continues to warm. Instead it reads as though renewable energy technologies are overall detrimental to human security while implying that the status quo is preferable. (Lane, Tracy, International Hydropower Association (IHA))
605	12	19	1	0	0	Given the argument of the prior section, that there is reason to think climate change affects factors known to be associated to civil war, this section should not focus solely on the conflict-enhancing impacts of climate responses, but also acknowledge the potential conflict-reducing aspects of responses (Conca, Ken, American University)
606	12	19	1	19	34	The sub-chapter might benefit from including the article of Tänzler/Maas/Carius (2010): Tänzler, Dennis/Maas, Achim/Carius, Alexander (2010): Climate change adaptation and peace. In: Wiley Interdisciplinary Reviews 1(5), 741-750. (Ide, Tobias, Research Group Climate Change and Security)
607	12	19	1	19	34	One issue not mentioned explicitly in this section is the insecurity arising from large adaptation projects, for example large dam projects. Earthquake hazard research demonstrates for instance that the 2008 M7.9 Wenchuan earthquake in Sichuan province was likely triggered by local and abnormal mass changes stemming from the sub-surface, in other words the water of a large dam. Klose, Christian D. 2012. "Mechanical and statistical evidence of the causality of human-made mass shifts on the Earth's upper crust and the occurrence of earthquakes." Journal of Seismology 17(1):109-135. (Webersik, Christian, University of Agder)
608	12	19	1	19	34	Section 12.5.2: The fact that climate change may be used to divert attention from non-climate underlying factors in conflicts (the concluding statement regarding the Darfur conflict on page 18, lines 4-5) or be used to institute action that will aggravate significant inequalities or grievances (page 19, lines 7-16) is an important concept. These points were also made in the recent National Academy of Sciences report "Climate and Social Stress: Implications for Security Analysis" released late 2012 and available at: (http://www.nap.edu/catalog.php?record_id=14682). In this NAS report, the author's perceive a great danger if "climate change generally, and water scarcity issues specifically, are taken and 'used' by contending parties to harden their negotiating positions." (page 5-6, NAS report). Likewise, the report raised similar concerns for food access and prices where "climate change impacts are likely to a factor in - or blamed for - food price spikes and food security crises"(page 5-8). (UNITED STATES OF AMERICA)
609	12	19	1	19	34	12.5.2 climate policy can interrupt incremental adaptation at local levels (Afifi, Tamer, Govil, Radha, Sakdapolrak, Patrick, and Koko Warner.2012.Climate change, vulnerability and human mobility: Perspectives of refugees from the East and Horn of Africa. Report No.1. United Nations University Institute for Environment and Human Security (UNU-EHS). Bonn. notes that climate policy of some governments interrupts spatial and temporal adaptations strategies of pastoralists without (yet) providing alternatives) (Warner, Koko, United Nations University - Institute for Environment and Human Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
610	12	19	3	0	9	This section is good to include and makes a valid point, but overall the chapter is disjointed and should be redeveloped around a central thesis or recognition that at present there are differing perspectives within the community. The section discusses adaptation actions decreasing the number of people who will be displaced (p 14 lines 30-38) (and displaced people would lead to more instability and violence), and then how adaptation can cause violence in itself. There needs to be information included about the relative scale of the violence caused by not adapting vs. adapting. The shapter should be reworked to provide a clear picture as to what is happening so that this document can be used to make decisions for future actions. As it is currently written the chapter is confusing and does not help with decision making, but reworking it to provide a comprehensive overview that includes the quantitative impacts of action or inaction is extremely useful. (UNITED STATES OF AMERICA)
611	12	19	3	19	5	While maladaptation is a possible reason for the increased risk of violent conflict, studies cited here do not directly suggest that CC mitigation and adaptation actions CAN decrease the risk of violent conflict. Instead a look into potential interactions would be more valid, for example Christian Parenti in his book "Tropic of Chaos" (Nation Books, 2011) calls for a vision which will incorporate three different aspects (neoliberal restructuring, Cold War militarism and climate change) potentially leading to violent conflict and calls this scheme as "catastrophic convergence".\n\n(NETHERLANDS)
612	12	19	5	19	5	Where "evidence" is mentioned, the chapter team should consider using summary terms for evidence (and agreement) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
613	12	19	6	0	0	There is a slight contradiction here with a statement made back on page 16 (lines 22 and 23) about the risks of violent conflict breaking out over access to natural resources. The authors should explore a way to align these two statements or make clear differentiation. (UNITED STATES OF AMERICA)
614	12	19	7	0	0	Please add "... management institutions are ineffective AND/OR ILLEGITIMATE". (UNITED STATES OF AMERICA)
615	12	19	18	0	21	This study, (Johnstone and Mazo 2011), identifying links between increased biofuels production, food price spikes, and social instability such as riots should also be cited in the above section on violence - not just the section on biofuels. (UNITED STATES OF AMERICA)
616	12	19	18	19	21	It was unclear how this paragraph fit with the overall section on adaptation actions or policy responses. The authors should either delete the biofuels discussion here if it is covered another chapter, or add an opening statement describing how investments in biofuel development is itself an adaptation strategy to climate change and then move to making the points that follow. (UNITED STATES OF AMERICA)
617	12	19	20	19	21	The claim of the cited reference is that climate change and related food price spikes have acted as a threat multiplier in Arab Spring despite not having a direct causal relations with social upheaval (ie. Arab Spring in this case). While there seems to be a relation, this sentence should be more carefully written to avoid any overgeneralization. See also this piece by Mohtadi (2012) http://www.thebulletin.org/web-edition/features/climate-change-and-the-syrian-uprising \n\n(NETHERLANDS)
618	12	19	23	19	28	In general there is too little discussion of the potential issues of conflict around REDD+. There is a strong academic literature to draw on as well as grey literature of case studies that show both the potential to reduce future conflict around land tenure (by creating a process to clarify tenure and use rights claims) at the same time there are serious potential that REDD+ can drive conflict. This is made possible through providing opportunities for elite capture that include elites taking advantage of contradictory legal structures. In addition there is various works on the governance of REDD+ finds that there is still insufficient representation and information to indigenous peoples in the REDD+. Also, some case work has found a lack of transparency as well as concerns about issues of corruption and transparency in the global governance of carbon payments. The authors should provide a more complete and robust discussion of REDD+ and include research by Transparency International. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
619	12	19	27	0	28	Eriksen and Lind (2009): no reason(s) been given for statement (Zeil, Peter, Center for Geoinformatics Z_GIS Salzburg University)
620	12	19	30	0	34	These studies showing hydropower projects, some of which have historically resulted in social conflict and human insecurity (for example forced resettlement), as a basis for concerns about increased violence and insecurity in the future (Conca 2005; McDonald-Wilmsen et al., 2010; Sherbinin et al. 2011) should also be included in the earlier sections of the chapter looking at violence, historical conflict patterns as indicators of potential future conflict. (UNITED STATES OF AMERICA)
621	12	19	30	19	33	In the past, dams have had resettlements that have caused harm to the people, but this section reads as though the wider global or regional population will suffer from more insecurity. Also, there's no basis to make a projection on future behaviour based on isolated cases from long ago. (Lane, Tracy, International Hydropower Association (IHA))
622	12	19	33	19	34	If the authors are going to include this sentence on a nuclear power potentially leading to nuclear proliferation/terrorism then it needs more than one sentence of discussion and more cited evidence. (UNITED STATES OF AMERICA)
623	12	19	40	19	40	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
624	12	19	41	19	41	Delete comma after 'communities'. (Burt, Peter, University of Greenwich)
625	12	19	42	19	52	Statistics from the 2009 UNEP report "From Conflict to Peacebuilding: the Role of Natural Resources and the Environment" help support the argument regarding the effects of conflict on population resilience. In this report, "conflicts associated with natural resources are twice as likely to relapse into conflict in the first five years." However, "fewer than a quarter of peace negotiations aiming to resolve conflicts linked to natural resources have addressed resource management mechanisms." The authors should reflect these findings accordingly. (UNITED STATES OF AMERICA)
626	12	19	43	19	43	Casual usage of the term "likely" should be avoided as it is a reserved likelihood term in the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
627	12	19	43	19	45	"where violent conflict emerges and persists, capacity to adapt to climate change is likely to be low (as illustrated in Figure 12-2)." Currently the way Figure 12-2 and its caption are presented, I do not see how the statement is depicted in the figure. Since the figure does not show the direct correlation of the two elements, perhaps, it is more appropriate to insert this figure later in the section. (Estrada, Yuka, IPCC WGII TSU)
628	12	19	51	19	51	There is some evidence that violent conflict degrades the quantity and quality of natural resources. This sentence needs to be reframed to include a subject. It's not clear what this part of the sentence is trying to say in any case. Is there an example that could be provided? (UNITED STATES OF AMERICA)
629	12	19	51	19	51	Where "some evidence" is mentioned, the chapter team should consider using summary terms for evidence (and agreements) to communicate its assessment, following the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
630	12	19	51	20	2	Again, the result can also be one of abundance and that can equally cause tension over access as well. Evidence from northern Uganda (LRA conflict) and the DRC (second Congo War beginning in 1998) demonstrates that certain tracks of valuable forest in fact regenerated, and in Sudan migratory white-eared kob in the Boma-Jonglei Landscape multiplied, while populations were displaced and the areas were inaccessible to commercial exploitation due to security concerns during the conflict. (UNITED STATES OF AMERICA)
631	12	19	52	19	52	Insert comma after 'example'. (Burt, Peter, University of Greenwich)
632	12	19	53	19	53	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
633	12	20	2	20	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
634	12	20	4	20	8	Consider including the example of Palestinian communities that are cut off from their agricultural land by the concrete security wall constructed by the Israelis. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
635	12	20	12	20	12	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
636	12	20	14	20	14	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
637	12	20	15	20	15	Insert comma after 'Thus'. (Burt, Peter, University of Greenwich)
638	12	20	19	20	19	Reference style needs correcting (Burt, Peter, University of Greenwich)
639	12	20	19	20	21	We recommend providing specific examples of what capacities are in fact degraded by conflict that are critical for coping with climate impacts. Are the authors referring to things like social cohesion and trust? If so, I suggest making this explicit. (UNITED STATES OF AMERICA)
640	12	20	21	20	21	Reference style needs correcting (Burt, Peter, University of Greenwich)
641	12	20	22	20	24	The sentence here appears cut off, ending with "may compound divisions where such efforts." Was there further discussion or examples to include in this paragraph? (UNITED STATES OF AMERICA)
642	12	20	23	0	0	incomplete sentence (Zeil, Peter, Center for Geoinformatics Z_GIS Salzburg University)
643	12	20	23	20	23	Text missing (Burt, Peter, University of Greenwich)
644	12	20	26	20	26	The statement that conflict-related displacement leads to social isolation should be reworded: it is not so much social isolation (e.g. many displaced to crowded camps/urban settlements) but rather disruption of social networks. (McMichael, Celia, La Trobe University)
645	12	20	28	0	0	instead of 'times of vulnerability' better 'in times of exposure' ? (Zeil, Peter, Center for Geoinformatics Z_GIS Salzburg University)
646	12	20	31	20	38	Some of the selected citations seem awkward. For example, the general references to illustrate how violent conflict can decrease local/state capacity to function effectively: There is the case of Palestine in 12.5.3, yet Palestine has witnessed far more than "urban land use" disruption due to violent conflict. To be sure, there is reference to water management disruption in the Gaza Strip ("conflict has reduced the ability of governance institutions") but there is no attempt to define what is meant here by "governance institutions", especially in this particular context. In other words, it is not clear how and why selective (and seemingly random) citations find their way in what is a dense or charged topic/section that often strays from the climate change focus. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
647	12	20	31	20	38	Not clear what this block of text has to do with climate change per se. (Burt, Peter, University of Greenwich)
648	12	20	33	20	33	note research published by Beck and Bernauer on the Zambezi (in GEC) and work by Siegfried an Bernauer (published in Climatic Change) showing that long term management deficiencies can undermine resilience to climate change (Bernauer, Thomas, ETH Zurich)
649	12	20	34	20	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
650	12	20	34	20	34	Change 'process' to 'processes'. (Burt, Peter, University of Greenwich)
651	12	20	35	20	35	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
652	12	20	37	20	37	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
653	12	20	43	0	0	Please consider adding: and potentially highlights government ineffectiveness or illegitimacy in the eyes of certain aggrieved identity groups. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
654	12	20	46	21	13	There is also a body of literature on disaster diplomacy which could be included here though this research does not directly relate to adaptation. For instance, disaster relief activities can trigger diplomatic relations and bring former enemies together, or more generally how and why disaster activities affect peace and security. Kelman, Ilan. 2012. Disaster diplomacy. Milton Park, Abingdon, Oxon. [England]; New York: Routledge. (Webersik, Christian, University of Agder)
655	12	20	48	20	52	The following publications (2 out of 6 to be published) is part of a global initiative led by the Environmental Law Institute (ELI), the United Nations Environment Programme (UNEP), the University of Tokyo, and McGill University to identify and analyze lessons in natural resource management and post-conflict peacebuilding, and could be included here: (1) Aas Rustad, Siri Camilla and Päivi Lujala. 2011. High-value natural resources and post-conflict peacebuilding. New York, NY: Earthscan. (2) Jensen, David and Stephen C. Loneragan. 2012. Assessing and restoring natural resources in post-conflict peacebuilding. Milton Park, Abingdon, Oxon; New York: Earthscan. (Webersik, Christian, University of Agder)
656	12	21	0	0	0	The emphasis on the ways in which disputes over water have been resolved largely peacefully is valid. (Joshua, Busby, University of Texas-Austin)
657	12	21	0	0	0	It would be helpful in the chapter on human security to discuss the regional distribution of relative vulnerabilities based on the confluence of physical exposure, demographics, social aspects at household and community level, and governance. Is Africa more vulnerable than Asia? To what? Why? (Joshua, Busby, University of Texas-Austin)
658	12	21	0	0	0	The section on the national security dimensions of climate change is important, but it would be helpful to have some discussion in the conceptual material up front about how to think about the difference between individual level human security and state-based concerns about survival of the state, inter-state borders, critical infrastructure. The Busby 2008 Security Studies paper has a detailed discussion of the conditions under which climate change could effect a country's national security, largely consistent with the discussion in this section. (Joshua, Busby, University of Texas-Austin)
659	12	21	1	21	7	This paragraph overlaps with the paragraph on p. 23 l. 12-21. (Mastrandrea, Michael, IPCC WGII TSU)
660	12	21	3	21	3	See review of the existing literature by Bernauer and Kalbhenn (ISA Compendium) (Bernauer, Thomas, ETH Zurich)
661	12	21	3	21	3	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
662	12	21	9	0	0	There is in fact a reasonable body of evidence around natural resource management efforts, other than water, that have resulted in improved governance and reduced conflict, providing lessons for how climate change approaches should be tailored. See (for example):\n"Livelihoods, Natural Resources, and Post-Conflict Peacebuilding", Edited by Helen Young, Lisa Goldman. To Be Published September 30th 2013 by Routledge.\n "Strengthening Post-Conflict Security and Diplomacy: Integrating Natural Resource Management and Infrastructure Redevelopment into U.S. and Japanese Peacebuilding Initiatives" . Available at http://www.eli.org/Program_Areas/SPCSD/research.cfm .\nLynch, O. J.; Talbott, K. "Balancing acts: community-based forest management and national law in Asia and the Pacific".\n1995 pp. xvi + 188 pp. (UNITED STATES OF AMERICA)
663	12	21	9	21	13	Next to water and peace parks, there exists also the form of cooperation known in the literature as disaster diplomacy. See, for instance:\nGanapati/Kelmann/Koukis (2010): Analyzing Greek-Turkish Disaster-Related Cooperation. In: Cooperation and Conflict 45(2), 162-185.\nKingsbury (2007): Peace Processes in Aceh and Sri Lanka: A Comparative Assessment. In: Security Challenges 3 (2), 93-112.\nKreuz (2012): Do Natural Disasters Produce Ripe Moments for Resolving Separatist Conflicts? In: International Interactions 38(4), 482-502. (Ide, Tobias, Research Group Climate Change and Security)

#	Ch	From Page	From Line	To Page	To Line	Comment
664	12	21	16	21	16	Please insert here a discussion on the international security dimension on climate change and condense the section on the national security dimension of climate change that is only slightly linked to the theme of this chapter on human security and climate change. Section 12.6 may be renamed as. International and National Security Dimensions. To totally ignore the role of international organizations and the international security dimension of climate change and both their contribution to the policy debate and the peer reviewed scientific literature on their specific contributions misrepresents the scientific debate this chapter should assess. (Brauch, Hans Guenter, Free University of Berlin)
665	12	21	16	23	34	While I understand your uneasiness with the more hard-nose geopolitical and security literature, you should nevertheless give it some space. In an IPCC report, you need to present the state of the art and give a fair hearing to all relevant literatures. Here are just a few references for consideration: CNA Corporation (2007) National Security and the Threat of Climate Change, Alexandria, VA: CNA Corporation; WBGU (2008) Climate Change as a Security Risk, London: Earthscan and German Advisory Council on Global Change (WBGU); Campbell, Kurt M. (ed.) (2008) Climate Cataclysm: The Foreign Policy and National Security Implications of Climate Change, Washington, DC: Brookings Institution Press; Herman Jr., Paul F. and Gregory F. Treverton (2009) The Political Consequences of Climate Change, Survival 51 (2): 137-148; Smith, Kerri (2011) We are seven billion, Nature Climate Change 1: 331-335. (Friedrichs, Joerg, University of Oxford)
666	12	21	22	21	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
667	12	21	27	0	34	Increased risk of forest fires should also be mentioned. (UNITED STATES OF AMERICA)
668	12	21	27	21	28	"Climate change..." Add ICT as another critical infrastructures, modern societies (also developing countries) increasingly dependant in many aspects of ICT, the interconnections being strong and transferring CC risks between infrastructures (Halonen, Mikko, Gaia Consulting Oy)
669	12	21	28	21	28	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
670	12	21	29	21	32	Insert more on critical infrastructure: ..and the shutdown of critical infrastructure, such as sea ports (Esteban, Miguel, Christian Webersik and Tomoya Shibayama. 2010. "Methodology for the Estimation of the Increase in Time Loss due to Future Increase in Tropical Cyclone Intensity in Japan." Climatic Change 102(3-4).) (Webersik, Christian, University of Agder)
671	12	21	33	21	33	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
672	12	21	35	0	0	Erosion in south eastern Nigeria have gullied away rail lines and taken great toll on access roads and electricity infrastructure, thereby cutting off rural areas served by this infrastructure and exacerbating poverty (Nwilo et al., 2011) \n\n[Peter Chigozie NWILO, Dupe Nihinlola OLAYINKA, Ibeabuchi UWADIEGWU, Ayila Emmanuel ADZANDEH. An Assessment and Mapping of Gully Erosion Hazards in Abia State: A GIS Approach\nJournal of Sustainable Development Vol. 4, No.5; October 2011]\n (Ezenekwe, Elochukwu, Nnamdi Azikiwe University)
673	12	21	40	21	40	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
674	12	21	42	0	0	but affect the whole should be "but also will affect the whole" (UNITED STATES OF AMERICA)
675	12	21	42	43	0	Suggest clarifying that thawing permafrost will affect water infrastructure affect the viability of settlements as described in Dersken, Smith et al 2012 (Climatic Change, vol 115) (CANADA)
676	12	21	43	21	43	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
677	12	21	45	21	46	The last sentence on this paragraph lacks proper context. Please add it. (UNITED STATES OF AMERICA)
678	12	21	46	21	46	Change 'Ethiopia' to 'Ethiopia's'. (Burt, Peter, University of Greenwich)
679	12	22	2	22	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
680	12	22	4	0	13	It should be mentioned that with sea level rise the current boundaries of the EEZs (exclusive economic zones) may shift, which may lead to conflicts over natural resources or boundary disputes. (UNITED STATES OF AMERICA)
681	12	22	4	22	4	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
682	12	22	4	22	11	The challenge climate change may pose to the sovereignty to Small Islands States, particularly in the Pacific, should be enlarged, see e.g. the two peer-reviewed book chapters by Kinnas, Yannis N, 2009: "Human Security, Climate Change and Small Islands", in: Brauch, Hans Günter, et al.: Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts, Berlin et al. : Springer-Verlag, pp. 131-139 and Achim Maas; Alexander Carius: "Territorial Integrity and Sovereignty: Climate Change and Security in the Pacific and Beyond", in: Scheffran 2012a, pp. 651-665. (Brauch, Hans Guenter, Free University of Berlin)
683	12	22	5	22	5	Due to tectonic activity, the sea level on the Tanzanian coast does not seem to be rising. The land mass is instead rising. See eg Kebede and Nicholls (2011). (Benjaminsen, Tor A., Norwegian University of Life Sciences)
684	12	22	7	22	7	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
685	12	22	10	0	11	Please add a reference that the physical integrity of low lying islands is under threat and is relevant to state sovereignty. (Jon Barnett, Adapting to Climate Change in Pacific Island Countries: The Problem of Uncertainty, World Development, Volume 29, Issue 6, June 2001, Pages 977-993, ISSN 0305-750X, 10.1016/S0305-750X(01)00022-5. http://www.sciencedirect.com/science/article/pii/S0305750X01000225) (UNITED STATES OF AMERICA)
686	12	22	11	22	11	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
687	12	22	15	22	20	The discussion of fisheries may fit better under the rubric or livelihoods (12.2) rather than geopolitical issues. (Friedrichs, Joerg, University of Oxford)
688	12	22	15	22	20	The chapter team should cross-reference specific findings and sections of chapter 6 and 30 in support of these statements, ensuring consistency with the conclusions of those chapters. (Mach, Katharine, IPCC WGII TSU)
689	12	22	17	22	17	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
690	12	22	17	22	17	Insert comma after 'activity' (Burt, Peter, University of Greenwich)
691	12	22	17	22	20	Another example would be mackerel or herring stocks shifting further north in Europe outside of EU waters and conflicts between other parties to shared stock agreements over management and how much catch should be allowed. For example: Climate change impacts on the biophysics and economics of world fisheries. U. Rashid Sumaila, William W. L. Cheung, Vicky W. Y. Lam, Daniel Pauly & Samuel Herrick Nature Climate Change 1, 449–456 (2011) doi:10.1038/nclimate1301 (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
692	12	22	18	22	18	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
693	12	22	19	22	19	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
694	12	22	27	22	27	Change 'System wide' to 'System-wide'. (Burt, Peter, University of Greenwich)
695	12	22	28	22	28	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
696	12	22	30	22	32	add into sentence also reference to mineral resources (Halonen, Mikko, Gaia Consulting Oy)
697	12	22	34	22	34	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
698	12	22	34	22	37	Relevant findings from the Working Group I contribution should be cross-referenced here. Additionally, specific cross-reference to relevant sections of Chapter 28 would be preferable. (Mach, Katharine, IPCC WGII TSU)
699	12	22	36	22	36	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
700	12	22	37	22	37	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
701	12	22	39	0	43	The Arctic Council, as part of its mandate, does not discuss national security issues and it is unclear if additional governance structures will be needed for security issues in the future. Authors should include this perspective as well, and coordinate with Arctic chapter for consistency (EBINGER, C. K. and ZAMBETAKIS, E. (2009), The geopolitics of Arctic melt. International Affairs, 85: 1215, 232. doi: 10.1111/i.1468-2346.2009.00858.x) (UNITED STATES OF AMERICA)
702	12	22	39	22	39	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
703	12	22	40	22	40	Insert comma after first 'Young' reference. If these are the same author, the second 'Young' can be deleted. (Burt, Peter, University of Greenwich)
704	12	22	47	23	21	The role of transboundary water basins has recently been reviewed by in the chapter on water in UNEP's GEO 6 that was published in June 2012. The section on research on transboundary conflict and cooperation ignores recent peer reviewed book chapters by: Aydin/Ereker, 2009; Hayek, 2009; Selby, 2009; Jägerskop, 2009; Adly/Ahmed 2009, Kameri-Mbote/Kindiki, 2009, Ashton/Turton, 2009; Kipping 2009, 2009a; Lindemann, 2009; Borghese, 2009; Tignino, 2009 all: in Brauch et al. 2009. The chapter cites much older literature Mc Caffey, 2000; Sadoff/Grey /2002, Conca 2002. Again authors from outside OECD countries are underrepresented. (Brauch, Hans Guenter, Free University of Berlin)
705	12	22	48	22	50	Two important crossboundary river basins which cut across a tense region are not included. These are namely Tigris and Euphrates.\n\n(NETHERLANDS)
706	12	22	49	22	49	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
707	12	22	50	22	51	Relevant citations and/or cross-references in clear support of this statement are needed. (Mach, Katharine, IPCC WGII TSU)
708	12	22	50	22	52	Do you have sources to support this claim? (Webersik, Christian, University of Agder)
709	12	22	50	22	52	The sentence starting with "Climate change...increased populations." could be supported with a source if possible. (Webersik, Christian, University of Agder)
710	12	22	50	22	52	This section contradicts the assertion previously made on p. 16 lines 47-48. This chapter needs to be consistent in its arguments and main thesis. (UNITED STATES OF AMERICA)
711	12	22	50	22	52	Please cross-reference Chapter 3 and consider the characterization of this topic in that chapter. (Mastrandrea, Michael, IPCC WGII TSU)
712	12	23	2	23	2	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
713	12	23	4	23	4	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
714	12	23	5	23	5	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
715	12	23	8	23	8	Change 'emphasize' to 'emphasizes'. (Burt, Peter, University of Greenwich)
716	12	23	8	23	8	Emphasize should be emphasizes. (UNITED STATES OF AMERICA)
717	12	23	10	23	10	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
718	12	23	12	23	21	This paragraph overlaps with the paragraph on p. 21 l. 1-7. (Mastrandrea, Michael, IPCC WGII TSU)
719	12	23	14	23	14	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
720	12	23	14	23	17	This section contradicts the assertion previously made on p. 16 lines 47-48. This chapter needs to be consistent in its arguments and main thesis. (UNITED STATES OF AMERICA)
721	12	23	15	23	15	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
722	12	23	23	23	23	Wording implies that Geoengineering technologies are already at hand. Please reformulate, e.g.: "Geoengineering – c o n c e p t s o f intentional large-scale interventions..." (GERMANY)
723	12	23	23	23	23	Capital 'S' required for 'Sun' (proper noun in this context, and as used elsewhere). (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
724	12	23	23	23	24	Doesn't SRM aim at reducing the short-wave solar radiation input, enhancing its reflection, or at increasing the long-wave thermal radiation to space?; and doesn't CDR aim at reducing/extracting CO2 in/from the atmosphere?; Please reformulate. (GERMANY)
725	12	23	23	23	25	Cross-references to relevant chapters in working groups 1 and 3 could be provided, along with specific cross-reference to relevant sections of chapter 20. (Mach, Katharine, IPCC WGII TSU)
726	12	23	23	23	34	The paragraph on geoengineering may not be relevant for a discussion of human security and climate change. (Brauch, Hans Guenter, Free University of Berlin)
727	12	23	24	23	24	Capital 'E' required for 'Earth' (proper noun in this context, and as used elsewhere). (Burt, Peter, University of Greenwich)
728	12	23	24	23	25	Please consider the large uncertainties attached to geoengineering and reformulate, e.g.: "...is increasingly considered a p o t e n t i a l strategy to address...". (GERMANY)
729	12	23	28	23	28	Split infinitive: move 'unilaterally' to after 'geoengineering'. (Burt, Peter, University of Greenwich)
730	12	23	29	23	34	The authors should be clear that the military is also involved in other aspects of climate adaptation and disaster risk reduction, so it is unclear why the only mention of it is in the geoengineering section, and specifically characterized as securitization, as opposed to a broader definition of human security being incorporated into military strategy (which is often the case). (UNITED STATES OF AMERICA)
731	12	23	30	23	34	There is no connection between "climate geoengineering" and "1977 UN Convention on the Prohibition of Military and Any Other Hostile Use of Environmental Modification Techniques". The key words here are "Military and Any Other Hostile". Geoengineering technics do not intend any actions which can be considered as "military" and "hostile". In line 33 a reference is given to (Keith, 2000). Let us note that D.W.Keith did not connect directly "geoengineering" and the Convention in the cited publication. (Ryaboshapko, Alexey, Institute of Global Climate and Ecology)
732	12	23	30	23	34	This sentence does not make sense, and there are referencing issues! (Burt, Peter, University of Greenwich)
733	12	23	30	23	34	Here a key reference is omitted. Simon Dalby in his book Security and Environmental Change (Polity Press, 2009) explains the securitization of climate change in detail in section 2.\n\n (NETHERLANDS)
734	12	23	31	0	0	The missing reference is: Brzoska, M., Link, P.M., Maas, A. & Scheffran, J. (eds.) (2012): Geoengineering: An Issue for Peace and Security Studies?, Sicherheit & Frieden / Security & Peace, Special Issue, 30 (4/2012). Individual articles from this special issue may be also relevant here. (Scheffran, Jürgen, University of Hamburg)
735	12	23	31	23	32	Please consider the large uncertainties attached to geoengineering. You might want to use a wording that includes other kinds of concern (potentially unknown at present time). Please reformulate, e.g.: "...but in the case of geoengineering, concern stems, i n t e r a l i a, from possible dual use ...". (GERMANY)
736	12	23	37	0	0	The conclusion could usefully summarize some of the principal uncertainties in knowledge about the links between climate change and human security (Conca, Ken, American University)
737	12	23	37	25	7	This part list the examples mainly, but lack of concise.This part should put out the main conclusions of this chapter. (Duan, Juqi, National Climate Center, Chinese Meteorological Administration)
738	12	23	37	25	7	The section 12.7 synthesis may need some revisions, The peer-reviewed literature on the impact of climate change on food security lacks any reference to the climate-induced decline in food production as argued in WBGU, 2008: World in Transition – Climate Change as a Security Risk (London: Earthscan); at: < http://www.wbgu.de/wbgu_jg2007_engl.html >.: and by Steffen Bauer, 2011: Stormy weather. International security in the shadow of climate change", in: Brauch et al. 2011, pp. 719-733. (Brauch, Hans Guenter, Free University of Berlin)
739	12	23	37	27	7	The concluding chapter does not discuss the relationship of human security to international and national security but also the relationship of human security with several related sectoral security concepts, e.g. water, soil, food, health and livelihood security that are briefly noted throughout the chapter. (Brauch, Hans Guenter, Free University of Berlin)

#	Ch	From Page	From Line	To Page	To Line	Comment
740	12	23	40	23	41	The phrase "high agreement" should be italicized. (Mach, Katharine, IPCC WGII TSU)
741	12	23	43	23	43	Are farmers in the Sahel in general concerned about the risks of climate change? Have farmers in the Sahel at all heard about global climate change? They probably have other much more tangible concerns. (Benjaminsen, Tor A., Norwegian University of Life Sciences)
742	12	23	44	23	45	The Synthesis in 12.7 refers to people in Tuvalu repoting that the cultural impacts of migration are a primary concern. However, this seems misleading because the reader might (rightly) be thinking of climate-induced migration, and yet the link between climate change and migration for the case of Tuvalu seemed to have been negated in the migration section of the chapter. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
743	12	23	45	23	49	The United Nations University Institute for Environment and Human Security (UNU-EHS) conducts research on the impacts of major drivers affecting human security, such as rapid- and gradual-onset environmental change – including climate change. (Milan, Andrea, United Nations University Institute for Environment and Human Security)
744	12	23	45	23	51	This discussion on institutional mandates doesn't really fit with the rest of the paragraph--expand or just delete it here. (UNITED STATES OF AMERICA)
745	12	23	49	23	51	The Synthesis says that framing CC as a human security issue facilitates conversations between different policy communities. But perhaps a better word than "facilitates" is "enables", because that conversation is too complex to benefit from "facilitation" by what is simply a conceptual twist (use of the broad term "human security" as opposed to, say, "development"). (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
746	12	24	3	24	10	The figure does not really show these interactions explicitly, and it would be very useful to devise a way to illustrate these cascading interactions. (Mastrandrea, Michael, IPCC WGII TSU)
747	12	24	5	5	6	Update to this reference (now paginated publication): Adler, C.E., McEvoy, D., Chhetri, P., Kruk, E. (2013). The role of tourism in a changing climate for conservation and development. A problem-oriented study in the Kailash Sacred Landscape, Nepal. Policy Sciences, 46(2): 161-178. Online first in 2012, DOI 10.1007/s11077-012-9168-4 (Adler, Carolina , Swiss Federal Institute of Technology (ETH Zurich))
748	12	24	7	24	7	Split infinitive: move 'peacefully' to after 'areas'. (Burt, Peter, University of Greenwich)
749	12	24	17	24	0	The authors should strongly consider inserting some supporting text to follow this first sentence: "When state and societal institutions perform in a manner seen as legitimate and effective - providing inclusive and accountable governance and delivering on basic services - the stresses generated by climate change are unlikely to ignite violent armed conflict. On the other hand, where deficits in legitimate and effective institutions are severe, climate change stress will contribute further to heightened risks of conflict." (UNITED STATES OF AMERICA)
750	12	24	17	24	18	It would seem rather reductive of this Chapter to state, in the synthesis, that "a key finding of this Chapter" is that "institutions are integral to the risks climate change poses". Surely one can think of other more important "key findings". (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
751	12	24	18	24	42	The summary terms for evidence and agreement used on lines 18, 32, and 42 should be italicized. (Mach, Katharine, IPCC WGII TSU)
752	12	24	19	24	20	The point being made in this statement could be clarified. (Mach, Katharine, IPCC WGII TSU)
753	12	24	20	24	20	Text missing after 'biological'. (Burt, Peter, University of Greenwich)
754	12	24	22	24	22	'et al.' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
755	12	24	24	24	27	Given the preceding sentence, the role of institutions in this example could be clarified. Additionally, it would be preferable to provide cross-reference to the specific relevant sections of Chapter 7. (Mach, Katharine, IPCC WGII TSU)
756	12	24	26	24	26	The authors should consider deleting: "Thus, climate change is not yet the primary risk to human security." That is far too definitive a statement. After all, an absence of evidence is not evidence of absence. Perhaps begin paragraph with: "Climate change is currently understood to be one of many drivers of human security that vary in priority depending on location and circumstance." (UNITED STATES OF AMERICA)
757	12	24	27	24	27	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
758	12	24	29	24	44	This paragraph focuses only on the discussion on adaptation and mitigation, it totally ignores the rapidly emerging debate on sustainability transition, as documented e.g. in the Routledge book Series on Sustainability Transition (since 2010) and in the new Elsevier Journal on Environmental Innovation and Sustainability Transition (EIST, since 2011). See also the report of the UN Secretary-General: UN-SG, 2009: Climate change and its possible security implications. Report of the Secretary-General. A/64/350 of 11 September 2009 (New York: United Nations) that refers among threat minimizers of climate change to several pathways towards sustainable development. (Brauch, Hans Guenter, Free University of Berlin)
759	12	24	33	24	33	Correct referencing style, plus 'et al.' in italics (Burt, Peter, University of Greenwich)
760	12	24	40	24	40	Delete comma after 'culture' (Burt, Peter, University of Greenwich)
761	12	24	43	24	43	Delete comma after 'mitigation' (Burt, Peter, University of Greenwich)
762	12	24	44	24	44	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
763	12	24	46	0	0	Shouldn't it be "it is one of many drivers of human insecurity" (rather than "of human security")? (Friedrichs, Joerg, University of Oxford)
764	12	24	46	24	46	The paragraph in the synthesis that begins with "thus" ("climate change is not yet the primary risk to human security") is misleading, because it does not seem to derive logically from the previous sentences to justify the use of the word "thus". (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
765	12	24	46	24	46	The logic of the transition "thus" is not completely clear, and perhaps the word could be deleted. (Mach, Katharine, IPCC WGII TSU)
766	12	24	46	24	46	Does the "yet" here mean that it is expected to be in the future? It would be useful to clarify this point. (Mastrandrea, Michael, IPCC WGII TSU)
767	12	24	46	24	51	It is difficult to improve on such a well written and thoughtful document. However the chapter is certainly is weighted toward a strong interpretation of climate change on security (as opposed to the opposite direction). To help with appearance of more balance, it might be useful to consider echoing text in the executive summary from page 24 line 46, starting with "Thus, climate change is not yet the primary risk to human security: it is one of the many drivers of human security..." (UNITED STATES OF AMERICA)
768	12	24	46	24	51	Who is saying climate change is the primary risk to human security? Why point this out and not just state the fact that climate change it is one of many drivers of insecurity? The text should be re-phrased accordingly and/or include citations. (UNITED STATES OF AMERICA)
769	12	25	1	25	3	Where high rates of warming are referenced on lines 1 and 3, are high magnitudes of warming relevant as well? (Mach, Katharine, IPCC WGII TSU)
770	12	25	4	25	7	What are the implications of this statement for future research: are there any mechanisms to reduce the reliance on previous past and present changes in light of this information? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)

#	Ch	From Page	From Line	To Page	To Line	Comment
771	12	25	10	0	0	These questions seem ad hoc. What are the principal threats to human security from climate change? What are the principal pathways and mechanisms by which climate change impacts human security? What are the consequence sof the most common adaptations, including migration, conflict, and cooperation? (Conca, Ken, American University)
772	12	25	10	25	37	I can see that people will frequently ask the question "Will climate change cause war between countries?" (FAQ 12.3), but I'm much less certain about the other two. Why do you think these are the questions people will ask most frequently? And if you're not sure, how could you find out which ones people are actually frequently asking? (Friedrichs, Joerg, University of Oxford)
773	12	25	12	25	20	It is not at all obvious why the question "How does lay knowledge of risks help adaptation to climate change?" would qualify a frequently asked one, to be included among the three selected FAQ's. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
774	12	25	22	0	0	FAQ 12-2 Displacement due to extreme events, or mobile communities that move between places during different seasons in a year may be considered in the answer. These movements may not be dominant like rural urban migration but they may be more related to climate variability. (Chatterjee, Monalisa, IPCC WGII TSU)
775	12	25	30	0	0	FAQ 12-3 Any example where institutions have been able to divert rivalries. (Chatterjee, Monalisa, IPCC WGII TSU)
776	12	25	30	25	37	But the current evidence is unable to account for future projections of climate change on built infrastructure and communities, and whether or not there is institutional capacity to absorb these changes (Conca 2005; McDonald-Wilmsen et al., 2010; Sherbinin et al. 2011). This question as a whole - focused on civil war, is misleading regarding the research that is available about climate change as one of many factors that contributes to increased unrest. FAQ12.3 could be reworded to reflect the conclusions of this research. (UNITED STATES OF AMERICA)
777	12	25	30	25	37	FAQ 12.3: This answer does not address the question and should be modified to reflect that while shared resources may be one source of conflict, changing access to natural resources is not the only impact of climate change that could cause war. Food insecurity and increased migrations may contribute to conflicts that lead to war as well. (UNITED STATES OF AMERICA)
778	12	25	34	25	34	Casual usage of "unlikely" should be avoided as it is a reserved likelihood term in the uncertainties guidance for authors. (Mach, Katharine, IPCC WGII TSU)
779	12	25	35	25	37	To deflect concern that climate change may cause interstate conflict, you emphasize that "conflict resolution institutions have [been] able to divert rivalries in ways that avoid violent conflict". That's been true in recent decates. But why would climate change not challenge these institutions, too? Why for example would countries that are now wealthy and powerful undertake costly measures to stabilize situations far from home if we consider that these countries themselves are likely be struggling to cope with the adverse effects of climate change? You are right that conflict resolution institutions have been effective and may continue to be so for a while, but at some point people and decision makers may decide to pursue narrow notions of self-help rather than to promote institutions. (Friedrichs, Joerg, University of Oxford)
780	12	25	36	25	36	sentence structure incorrect (Reuter, Thomas, University of Melbourne)
781	12	26	35	26	37	Reference pages should be added as pp. 1-24\n\n (NETHERLANDS)
782	12	31	3	0	0	This publication is 2006, not 2002 (Conca, Ken, American University)
783	12	39	39	40	11	References out of alphabetical order (in Scottish surnames 'Mac' and 'Mc' are treated the same, therefore this block should start on line11). (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
784	12	41	19	41	19	This reference is incorrect. It should read: "Nicholls, R. J., Marinova, N., Lowe, J. A., Brown, S., Vellinga, P., de Gusmao, D., Hinkel, J. and Tol, R. S. J., 2011: Sea-level rise and its possible impacts given a 'beyond 4°C world' in the twenty-first century. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 369 (1934), 161-181." (de Gusmao, Diogo, Met Office Hadley Centre)
785	12	43	25	43	26	Reference pages should be corrected as "1925-1945" instead of "1925 at 1925"\n\n (NETHERLANDS)
786	12	45	30	45	32	There has been some confusion over this reference. It should read: Smith, C., 2013: Modelling migration futures in Tanzania: Development and testing of the Rainfalls Agent-Based Migration Model-Tanzania. Climate and Development. Submitted. Available from the author at UNU-EHS. (Smith, Christopher, United Nations University)
787	12	46	0	0	0	Table 12-1: This table tends to stray into WGI-type physical climate changes (e.g., Glaciers and Ice caps, Floods in NL). It will be essential to ensure consistency with relevant material in chapter 3 of the SREX, and from the observation and projection chapters of the WGI AR5 (i.e., Chapters 2, 4, 11 – 14). (Plattner, Gian-Kasper, IPCC WGI TSU)
788	12	47	31	47	31	Prager should read "Praeger" (Webersik, Christian, University of Agder)
789	12	47	32	47	32	Move full stop up one line. (Burt, Peter, University of Greenwich)
790	12	49	0	0	0	Table 12-1: Under "Water Stress and Scarcity" flooding should be explicitly stated as one of the downstream impacts.\nUnder "Destruction of homes and properties," an increased risk of forest fires should be mentioned. (UNITED STATES OF AMERICA)
791	12	49	0	0	0	Table 12-1. I will provide a number of small suggestions for this table, attempting to identify the relevant entries as clearly as possible. For the 2nd bullet of the box at the intersection of livelihood assets and evidence from observations, is "disposed" the clearest descriptor? Selling off assets, versus slaughtering livestock, versus tossing assets in the trash, could be differing meanings of "disposed," and the intended meaning could perhaps be clarified further. For the 1st and 2nd bullets of the box at the intersection of livelihood assets and projections, specific cross-reference to relevant sections of Chapter 7 could be provided. For the 1st bullet at the intersection of water stress and scarcity and evidence from observation, specific cross-reference to relevant sections of chapter 3 could be provided; for the 2nd bullet within this box, would placement under "projections" be more appropriate? For the 2nd bullet in the box at the intersection of water stress and projections, specific cross-reference to chapter 3 could be provided. For the 3rd bullet in the box at the intersection of destruction of homes and property and evidence from observations, would placement under projections, one box to the right, be more appropriate? For the 2nd bullet within the box at the intersection of destruction of homes and property and projections, specific cross-reference to chapter 10 could be provided. (Mach, Katharine, IPCC WGII TSU)
792	12	49	0	49	0	Table 12-1. Under the dimension of impacts could be included Ecosystem services mining or eroding. In rural areas and medium and small cities of the world that are still very dependent on ecosystem services, the impact of climate change on such services needs to be considered. Change on species and ecosystems could have an impact on the ecosystem services provision, for example if Paramos in the Andean Region are not resilient to climate change many cities including capital cities in the region will face water scarcity. In coastal areas if coral reefs, seagrasses, mangroves and saltmarshes are not able to cope with climate change, their natural protective role will also diminish. Pollinators role could also be affected by climate change and hence food security. Pests and plagues could expand the distribution areas as has been suggested with dengue and malaria... etc . There are plenty references in the report see for example chapter 27 page 17 where is discussed the potential impacts of CC on South and Central America biodiversity (Lacambra Segura, Carmen, Grupo La era)

#	Ch	From Page	From Line	To Page	To Line	Comment
793	12	49	0	50	0	The selected literature in this table does not offer criteria why the categories of livelihood assets, water stress and scarcity, destruction of homes and properties, agriculture and food security and human capital were chosen, and why the impact of both floods was ignored. Relying solely on abstracts of literature cited in Scopus may not be representative at all, as the regions with the highest impacts of floods (especially India and China) are not noted. This is a fundamental shortcoming of the literature to be included in this assessment. There are many peer-reviewed studies in those regions and from scholars from those regions that were just not included. The Northern focus of the authors may thus have been reinforced by the literature that was selected for assessment.. (Brauch, Hans Guenter, Free University of Berlin)
794	12	49	1	0	0	Table 12.1. I wondered if the evidence on floods in Fiji and asset loss should be moved to the livelihood assets?+ (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
795	12	49	1	49	0	Table 12.1. Livelihood assets - should there be a point made here on the projections for flooding to match the other points made under evidence from observations? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
796	12	50	0	0	0	Table 12-1. For the 1st bullet of the box at the intersection of agriculture and projections, casual usage of the likelihood term "likely" should be avoided. Additionally, specific cross-reference to relevant sections of Chapter 7 or 22 could be considered. For the 1st bullet within the health observations box and for the 3rd bullet within the health projections box, specific cross-reference to chapter 11 could be provided. For the 2nd bullet within the health projections box, casual usage of "likely" should be avoided. (Mach, Katharine, IPCC WGII TSII)
797	12	51	0	0	0	Table 12-2. Confusing table. The "statements" in column two and three should be shortened and reduced in numbers. Lowest row: Several more papers could support the statement: "climate knowledge with local relevance will facilitate adaptation": Dannevig, H., Rauken, T., & Hovelsrud, G. (2012). Implementing adaptation to climate change at the local level. Local Environment, 17(6-7), 597–611. doi:10.1080/13549839.2012.678317 (Dannevig, Halvor, Western Norway Research Institute)
798	12	51	0	51	0	This figure on the cultural dimension of human security in the context of climate change is truly comprehensive, however, it is unclear why other dimensions of human security were not give a similar emphasis. (Brauch, Hans Guenter, Free University of Berlin)
799	12	51	0	51	0	Table 12-2. Excellent table, text clear and to the point (Halonen, Mikko, Gaia Consulting Oy)
800	12	52	0	0	0	Table 12-3. Final bullet point of 3rd section (last 3 lines of page 52). It should be noted that the 'extreme drying' was a hypothetical scenario used to test the range of influence of rainfall. Text along the lines of 'was greatest under a hypothetical scenario of extreme drying' might be more appropriate. The reference is also incorrect. These findings are from a UNU-EHS policy report - http://www.ehs.unu.edu/file/get/10569.pdf . Citation: Warner, K., T. Afifi, K. Henry, T. Rowe, C. Smith, A. de Sherbinin, 2012: Where the rain falls: Climate change, food and livelihood security, and migration. United Nations University. Bonn. The Tanzania model findings presented here could also be placed in better context by citing the later Smith (2013) paper that shows that, although need-driven migration was seen to be proportionally more sensitive to changes in rainfall than aspirational migration, the smaller actual numbers of need-driven migrants mean that they have little real impact upon total migrant numbers. Citation: Smith, C., 2013: Modelling migration futures in Tanzania: Development and testing of the Rainfalls Agent-Based Migration Model-Tanzania. Climate and Development. Submitted. Available from the author at UNU-EHS. (Smith, Christopher, United Nations University)

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801	12	52	0	0	0	Table 12-3. Communication of the relevant specific details for examples provided in this box should be ensured. For example, the reader should be able to understand the relevant time frame and/or type of relevant weather event for each example (for both observations and projections). Within the 1st box, for example, time frames could be specified for the examples for Ethiopia, Mexico, and Guatemala; 2 boxes down, time frames could be specified for the 1st Burkina Faso example and for the Ecuador example. On the 2nd page of the table, the relevant time frame for the 1st Bangladesh example could be clarified, along with the timeframe for the example for Vanuatu. For the 1st United States example under sea level rise, the relevant geographic area within the US should be clarified, along with the time frame. (Mach, Katharine, IPCC WGII TSU)
802	12	52	0	0	0	Table 12-3: While I think it can work to include both observed and projected outcomes in the table, it is important to specify in each case whether the described outcome has been observed, is projected for the future, or reflects both observations and projections. This is not always clear. currently. (Mastrandrea, Michael, IPCC WGII TSU)
803	12	52	0	52	0	Againn the selection of cases may have relied on the available journal abstracts in Scopus and not on the relevant importance of the impact of drought and land degradation. According to a search in EMDAT database as of 22 May 2013 the ten most serious droughts < http://www.emdat.be/result-disaster-profiles?disgroup=natural&period=1900%242013&dis_type=Drought&Submit=Display+Disaster+Profile > the ten most deadly dorughts, with the highest number of people affected and the highest economic damage) may have let to a different inclusion of literature to be assessed. The ten most important droughts from 1900 to 2013 occured in India (6) and China (4). Hoever, there is no reference to China and only one by Jülich to temperary migration in one East Indian village. Is this reference representative for the 1 billion and 50 million people in India that were affected by six droughts? (Brauch, Hans Guenter, Free University of Berlin)
804	12	52	0	53	0	Table 12-3: Perhaps the location and sources can be presented in separate columns to increase readability. (Estrada, Yuka, IPCC WGII TSU)
805	12	52	1	0	0	Table 12.3. Uganda - "high soil quality marginally increases migration" This is in the evidence for decreased migration. Is this right? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
806	12	52	1	52	0	Table 12-3 is really useful. However, some of the case studies in the 'drought and land degradation' section don't quite seem to fit their headings, particularly the Nepal and Uganda examples in the 'evidence for decreased migration. . . ' section. (McMichael, Celia, La Trobe University)
807	12	53	0	53	0	The same argument about the potential lack of representative cases chosen also applies to floods. According to a search in EMDAT database as of 22 May 2013of the ten most serious floods from 19000 to 2013 refer to 9 floods in China and one in India. However, both countries are not listed with any study that was assessed. It is doubtful that from the list presented policy-relevant conclusions may be drawn. (Brauch, Hans Guenter, Free University of Berlin)
808	12	53	1	0	0	Senegal, over 40% new migrants located in the high risk flood plain. Is it evidence of a trapped population? And same for Tuvalu. Perhaps the down arrow is a little misleading as it is not a decrease in migration but evidence of a trapped population. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
809	12	54	0	0	0	Figure 12-1 is hard to interpret. After some eyeballing I've understood it, but I feel it detracts from rather than adds to the clarity of the text. If you stick to it, the legend should perhaps read "Ability to move and vulnerability are inversely associated", as this would use the same terms as in the table and avoid the loaded term "correlation". (Friedrichs, Joerg, University of Oxford)

#	Ch	From Page	From Line	To Page	To Line	Comment
810	12	54	0	0	0	When I look at the data in Figure 12-2, the only thing it really seems to suggest is that conflict and post-conflict countries never have high governance effectiveness. Below the horizontal axis there is no clear pattern, and conflict and post-conflict countries seem to be only marginally lower on the HDI than other developing countries. (Friedrichs, Joerg, University of Oxford)
811	12	54	0	0	0	Figure 12-2 maybe correct but the overlapping symbols prevent an appropriate visual expression of the claim that conflict and post-conflict societies exhibit low levels of governance and human development. (Webersik, Christian, University of Agder)
812	12	54	0	0	0	Figure 12.1. 1 vulnerability and environmental change - where is the independent and dependent variable) X-axis: well-being an capital, how come there is a positive relationship between x and y (vulnerability to environmental change)? Text mentions that there is an inverse relationship between mobility and vulnerability. How is this show in the graph? Unit of measure should either be conflict, post-conflict and non-conflict countries or developed and developing countries. But the authors use developing countries and compare them with conflict and post-conflict countries (contrast is not clear). Important to explain what the figures indicates (not clear). Scatter plot needs to be explained more adequately (governance effectiveness and HDI on x and y axes), what is exactly the relationship between both of them, which one influences the other? (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
813	12	54	0	0	0	Figure 12-1: This figure is not especially clear- it confuses a concept that can be explained very easily with words. Recommend cutting this figure out. (UNITED STATES OF AMERICA)
814	12	54	0	0	0	Figure 12-1: The figure caption seems to be confusing and incomplete (i.e., no mention of what “trapped population” is. The text (P 12 Line 48-52) explains the figure better. (Estrada, Yuka, IPCC WGII TSU)
815	12	54	0	0	0	Figure 12-2: The figure caption needs much more explanation. Please explain how Governance effectiveness and Human development index are calculated. (Estrada, Yuka, IPCC WGII TSU)
816	12	54	0	0	0	Figure 12-2. Beyond the scatter plots provided, the chapter team should consider plotting relevant summary statistics, for example box and whisker plots of relevant averages and measures of variability for each category and axis. (Mach, Katharine, IPCC WGII TSU)
817	12	54	0	0	0	Figure 12-2: This is a useful figure, and it would be valuable to consider ways to depict the overall difference between blue and red sets. If appropriate, displaying aggregate measures of mean and spread would be very useful. (Mastrandrea, Michael, IPCC WGII TSU)
818	12	54	0	55	0	There are three Figures in the chapter, and none of them seems particularly strong to me. That's a problem because you'll see after publication that people get very much fixated with Figures. This is what they will remember, and this is what they will debate online. You really should make sure that your figures are extremely clear and meaningful. (Friedrichs, Joerg, University of Oxford)
819	12	55	0	0	0	Figure 12-3 is almost impossible to follow. The arrows seem to suggest movement of problems on the spatial and climate stress axes, but it's hardly intelligible in these terms. I've chewed it over for some time but still don't get it. [On a truly minor note: in the figure, where you refer to subsection 2.2, you apparently mean 12.2, etc.] (Friedrichs, Joerg, University of Oxford)
820	12	55	0	0	0	Figure 12-3. The text associated with Figure 12-3 (page 24, line 3 to page 24, line 10) provides a useful example of the complexity associated with interactions between the elements of human security discussed in the chapter. However, I do not find Figure 12-3 a useful representation of this complexity. I do not see how the variables listed on the x and y axis relate to either the ellipses or the security changes indicated by arrows. In my opinion the text alone portrays the interactions more effectively. (Smith, Christopher, United Nations University)

#	Ch	From Page	From Line	To Page	To Line	Comment
821	12	55	0	0	0	Figure 12.3: The reference to transboundary institutions mediate resource rivalry (12.6) may be a bit misleading as this section only refers to the national security dimension of climate change and ignores the international security dimension of climate change. (Brauch, Hans Guenter, Free University of Berlin)
822	12	55	0	0	0	Figure 12-3 is very complex and too clear to the reader. For example, the issue that "land grabs exacerbate land tenure conflicts" maybe true but the visual representation does not show an increase in conflict frequency or intensity (since the two circles stay within the conflict bubble). Overall, suggest to deleting this figure and replacing with more meaningful synthesis figure. (Webersik, Christian, University of Agder)
823	12	55	0	0	0	Figure 12.3: The overlap between the four factors cultural change, conflict, migration and livelihoods must be better explained. What is the mechanism? Not enough to put examples. Why are only these factors included (what are the criteria in selecting them)? (Afifi, Tamer, United Nations University Institute for Environment and Human Security)
824	12	55	0	0	0	Figure 12.3, locating migration and mobility only in the lower range of climate stress is not reflective of the whole issue and should be modified. Clearly, higher levels of stress are associated with greater requirements for transformational change, often involving relocation (see Chapter 20). (UNITED STATES OF AMERICA)
825	12	55	0	0	0	Figure 12-3: The figure caption needs to explain all elements of the figure so that it can stand alone. The legend (blue vs red arrows, solid vs open circles) should be provided in the caption. (Estrada, Yuka, IPCC WGII TSU)
826	12	55	0	0	0	Figure 12-3. Given the importance of this figure in summarizing the assessment of the chapter, I would strongly encourage the chapter team to ensure it communicates as much as possible, as clearly as possible. For example, although the figure caption asserts that the figure demonstrates interactions between elements, it is not really clear where feedbacks and interactions can be observed in the graphic. To indicate interactions, elements of a "flow" diagram could be considered, with arrows indicating the direction and nature of interactions. For the title of the Y axis, it is not really clear what is meant by "climate stress"--are physical stressors/hazards associated with climate change being referred to? Or, more nearly, is the axis being used as a metric for vulnerability and exposure in examples given? Finally, I'm not sure I understand why the arrow for "income loss reduces mobility for low income pastoralists" is blue, given that blue arrows seem to be reserved for positive changes in the other examples. (Mach, Katharine, IPCC WGII TSU)
827	12	55	0	0	0	Figure 12-3: As mentioned in the context of the chapter text where this figure is introduced, the figure does not really depict interactions such as those described in the text. It would be very useful to devise a way to illustrate these cascading interactions. It is also unclear what the vertical axis represents. Does it encompass climate variability and climate change, for example? Finally, the line of sight in some of the boxes says "2" rather than "12". (Mastrandrea, Michael, IPCC WGII TSU)