#	Ch	From Page	From Line	To Page	To Line	Comment
1	11	0	0	0	0	11.5 in general: More proof is growing on necessary additions to future predictions, as nicely put in the first paragraphs of this chapter. For e.g. the sole human population growth or the changes in landuse might be associated to changes even if no climate change occurred. Or they could be confounded with climate changes. On dengue, many works mention the importance of not only climate but also human population growth and travel. Some are beginning to consider them (see citations and an example in Carbajo et al. 2012). This work is also interesting in proving that considering only certain type of variables in correlative studies may conduce to erroneus interpretation ofresults. e.g. if only climatic variables are used, the changes might be atributed to climate (as long as the model has a good predictive value). For other diseases, some works suggest that the effects would differ by zone, even for a certain region (Carbajo et al. 2009). The distribution of hantavirus reservoir is predicted to vary geographically in Patagonia, with a net contraction in its distribution. Diseases closely related to ecosystems, need the changes in the latter to follow changes in climate. Although dengue may follow quite closely the changes in climate (its vector is an urban mosquito, and the urban environment nearly ubiquitous), this may not be the case for malaria in areas close to the distribution limit. The ecosystem associated with its transmission may not expand so easily (in these areas the vector lives in jungles or rainforest- Danton Juri et al 2011). On the contrary, it would probably be deforestated (confront chapter 27.2.2). Bibliography: Carbajo A.E., Cardo M.V. y Vezzani D. (2012) Is temperature the main cause of dengue rise in non- endemic countries? The case of Argentina. International Journal of Health Geographics 11:26. Carbajo A.E., Vera C y González P.L.M. (2009) Hantavirus reservoir Oligoryzomys longicaudatus spatial distribution sensitivity to climate change scenarios in Argentine Patagonia. International Journal of Health Geographics. 8(1):44. Danton Juri, M.J., Stein, M., Mureb Sallum, M.A. 2011. Occurrence of Anopheles (Anopheles) neomaculipalpus Curry in north-western Argentina. J. Vector Borne Diseases 48:64-66. (Carbajo, Anibal Eduardo, Universidad Nacional de San Martín)
2	11	0	0	0	0	Human Health is an important chapter that must be included in any report related climate change and needs much further researches to fulfil all the missed or under mentioned topics in the chapter. (Saad-Hussein, Amal, National Research Center)
3	11	0	0	0	0	I found the chapter clear and well written for an "outsider". The style is clean. A general comment would be that most of the text is that of a review. There is only a little bit of assessment. (Stouffer, Ronald, Geophysical Fluid Dynamics Laboratory/NOAA)
4	11	0	0	0	0	Chapter 11 provides a comprehensive overview of what is currently known about the impact of climate on human health and the effect that climate change and adaptations may have on disease occurrence. (Nichols, Gordon, European Centre for Disease Prevention and Control)
5	11	0	0	0	0	The subject is problematic because on the one hand the problem of the health impact of climate change has been described as a key public health risk in the 21st Century (1), and on the other there is a perception by some Epidemiologist colleagues that there are many more important public health issues that need to be addressed before the slight changes in disease distribution associated with changed weather patterns becomes important (addressed in 11.4). There is also a feeling that some of the infectious disease modelling is based on climate models, and is inherently difficult to have trust in. In addition there is also a perception that claims of future health risks can be overdone, with an incentive to flag up threats over possible benefits of climate change on health. I take the view that there are likely to be significant future health risks, but we need to exhibit objectivity in assigning these. (Nichols, Gordon, European Centre for Disease Prevention and Control)
6	11	0	0	0	0	Chapter 11 provides a good degree of balance, and the authors should be congratulated on covering a wide spectrum of health issues in a considered fashion. However, there are a number of issues that should be addressed. (Nichols, Gordon, European Centre for Disease Prevention and Control)

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7	11	0	0	0	0	The discussion of positive health benefits seems to underplay the possible health gains from warmer winters. There is evidence that cardiac conditions and seasonal mortality are affected by cold temperatures (2-4), that a benefit of examining heat events has been to suggest that some of the excess morbidity and mortality associated with cold is preventable, setting up cold event plans in addition to heat wave plans and understanding some of the possible positive health outcomes that may arise from predicted climate change. However, the positive effects of warmer winters will not have great relevance in many tropical countries. (Nichols, Gordon, European Centre for Disease Prevention and Control)
8	11	0	0	0	0	Governance has been mentioned in this chapter as well as in the report as a whole and in the human security chapter, but it's crucial role in health and the impacts of climate change is, I think, under-represented in both. Many of the aspects of human activity that can influence health are the responsibility of the people who govern, either at executive, legislative, judicial or public servant level. Many of the bad things that are likely to happen as a consequence of climate change are influenced by governance, and many of the problems of developing nations result from poorly functioning state and corporate governance (in terms of the needs of the citizens). War, migration, class, caste and ethnic exclusion affect the health of populations and will be influenced by governance and changes in climate. (Nichols, Gordon, European Centre for Disease Prevention and Control)
9	11	0	0	0	0	The measurement of disease is important in order to provide good standards with which to test if there have been changes in disease that can be attributed to climate change. Variously within the text there have been references to increased cases, increased incidence/prevalence, % increase in occurrence, lost healthy life years, life expectancy, willingness to pay, childhood stunting, child mortality, malnourishment/undernourishment (hunger), disability adjusted life years, disease burden and baseline health status. Some of these elements may have relatively small impacts at the population level, while others are large. It is difficult from the report to assess what the likely big overall impacts are. Childhood mortality is predicted to decline with the Millennium Development Goals (fig 11-1) and climate change may slow this. So here the measure is a reduction in the speed with which child mortality is reduced. I have no problem with the use of all these parameters, but the report should try to conclude what the main disease burdens will be. As an example the deaths from floods average 100 per year for the EU with 340,000 affected (11.4). This might be regarded as a small proportion of deaths and injury from motor vehicles or heart disease. My guess would be that substantial illness and death associated with famine and drought would be a strong contender for the most important risk in the medium term. It would be good if the predictions of the main health impacts could be more clearly categorised in a table. (Nichols, Gordon, European Centre for Disease Prevention and Control)
10	11	0	0	0	0	Obesity, a modern epidemic particularly in developed countries, has been missed. It has been described as important in climate change because of the impact of obesity on increasing human biomass, but are there links to vulnerability associated with heat events? (Nichols, Gordon, European Centre for Disease Prevention and Control)
11	11	0	0	0	0	Methods. There are issues with optimisation and standardisation of the methods used for linking diseases to climate and more specifically attributing changes in disease to climate change and drawing up predictions. This particularly relates to problems when looking at weather parameters and the seasonality of infections such as Salmonella and Campylobacter. This is because confounding can be important and infections may vary with temperature but exposure may vary seasonally and be independent of temperature. These technical areas need to be addressed over coming years if we are to have credible resources for preparing to adapt to future climate scenarios. Climate Change will have an impact in specific diseases/areas but we need to have appropriate ways of measuring overall predicted global disease burden that people can have confidence in. (Nichols, Gordon, European Centre for Disease Prevention and Control)

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12	11	0	0	0	0	Immunisation has been very effective in a number of infectious diseases, preventing both disease and transmission within the community through herd immunity. One possible response to potential increases in infections related to climate change could be an international investment in the development of a range of new vaccines to respond to predicted increases in climate change related infections. The authors have mentioned the reduced symptoms of disease associated with rotavirus vaccination. Malaria vaccines are beginning to be show reasonable levels of protection and dengue vaccines are also being trialled. Cold related winter deaths may be linked in some way to seasonal deaths from influenza and pneumococcal pneumonia. Vaccination of the elderly with influenza vaccine has reduced mortality in this population group. There is a possibility that technological (vaccine) responses to predicted infectious disease increases may be practical and cost effective. (Nichols, Gordon, European Centre for Disease Prevention and Control)
13	11	0	0	0	0	One of the dilemmas of current climate change dialogues is the sustainability of actions over the medium to long term. World population continues to rise steeply and the approach to development of improving education and health with the expectation of a levelling of in fertility within two generations is fine, but will result in a World Population that is very much larger than it currently is within the medium term. This will inevitably result in increased GHG emissions resulting from increased net consumption and will not necessarily guarantee a reduced population of poor people. There needs to be a radical re-assessment of the sustainability of measures and how to deal with the rising population problem. The increased overall population size means that disasters, whether natural or man-made, will have higher mortality associated with them. This is an area that needs to be adequately addressed in the whole response to climate change as well as in Chapter 11. (Nichols, Gordon, European Centre for Disease Prevention and Control)
14	11	0	0	0	0	Disease interventions are important in estimating future changes in disease occurrence. Current interventions in salmonellosis in the EU are causing reductions through the vaccination of chickens. This has been through implementation of the Zoonosis Directive. Interventions in many areas of infectious disease at either governmental or international levels can be expected in response to increases associated with climate change, and this must be a caveat to many of the predictions of increases in infectious disease associated with climate change, both in developed and developing countries. (Nichols, Gordon, European Centre for Disease Prevention and Control)
15	11	0	0	0	0	Infections related to drought and famine may become more common if there is widespread societal disruption and migration associated with such catastrophic events. This might lead to resurgence of dysentery, cholera, typhoid, trachoma and other diseases of the poor. The unplanned movement of populations from rural to urban settings in developing countries can also result in changed disease risks that can be influenced by climate. (Nichols, Gordon, European Centre for Disease Prevention and Control)
16	11	0	0	0	0	Impact of the burden of parasitic diseases on stunting/development, and how climate change will affect this, is currently poorly represented in the chapter. (Nichols, Gordon, European Centre for Disease Prevention and Control)
17	11	0	0	0	0	Chapter 11 is a significant contribution to understanding the relationships between climate change and health. The authors must be congratulated for a great effort in condensing the vast literature into a readable chapter. I still have a sense in reading the chapter that there is a desire to uncover evidence for health links to climate change that are bad and to downplay likely health improvements (such as fewer winter deaths), but this may be my reading of the text. (Nichols, Gordon, European Centre for Disease Prevention and Control)

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18	11	0	0	0	0	1. Ebi KL, Helmer M, Vainio J. The health impacts of climate change: getting started on a new theme. Prehospital and disaster medicine. 2008 Jul-Aug;23(4):s60-4. PubMed PMID: 18935961. 2. Wanitschek M, Ulmer H, Sussenbacher A, Dorler J, Pachinger O, Alber HF. Warm winter is associated with low incidence of ST elevation myocardial infarctions and less frequent acute coronary angiographies in an alpine country. Herz. 2013 Mar;38(2):163-70. PubMed PMID: 22695725. 3. Bennett CM, Dear KB, McMichael AJ. Shifts in the seasonal distribution of deaths in Australia, 1968-2007. International journal of biometeorology. 2013 Apr 24. PubMed PMID: 23609900. 4. Conlon KC, Rajkovich NB, White-Newsome JL, Larsen L, O'Neill MS. Preventing cold-related morbidity and mortality in a changing climate. Maturitas. 2011 Jul;69(3):197-202. PubMed PMID: 21592693. Pubmed Central PMCID: 3119517. 5. Suk JE. Epidemic communities. Climate change, emerging disease, and the governance of science 2013. University of Edinburgh. PhD Thesis 6. Kolstad EW, Johansson KA. Uncertainties associated with quantifying climate change impacts on human health: a case study for diarrhea. Environmental health perspectives. 2011 Mar;119(3):299-305. PubMed PMID: 20929684. Pubmed Central PMCID: 3059990. (Nichols, Gordon, European Centre for Disease Prevention and Control)
19	11	0	0	0	0	The report is comprehensive and complete. Two important advances are missing. One would be a conceptual framework which would advance from AR4, the other an idea of the magnitude of the health impacts, even if qualitative as done in AR4, but improving from it. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
20	11	0	0	0	0	A general comment regarding chapter 11 is that it is difficult to understand the role that climate change plays in a number of the associated impacts that are discussed and how the uncertainty in climate projections is incorporated into the impacts/projections in this chapter. (Landuyt, William, ExxonMobil Research and Engineering)
21	11	0	0	0	0	The chapter has been improved in terms of writing and composition. It is more concise. It seems that the introduction of additional authors helped in improving the chapter. The authors addressed almost all my comments with the exception of my indication of the need for a systematic review. I still consider the way the scientific evidence is synthesised as very unlucky. I explained the reasons and the necessity of a systematic review in my comments in the review of the first draft. The authors argue that a systematic review in not requested by the IPCC and therefore they don't perform it. Even if it is so and given the enormous influence th IPCC reports have a systematic review is in my opinion a must and therefore the authors should have performed it. It would have improved the quality of the paper a lot. By ingoring this recommandation they are running the risk to be accused for selection bias, at least partially. This remains a major weakness of the chapter. I noticed that the authors cite many papers they wrote themselves and their collaborators. This is understandable since they have been very active in the field. However, this might indicate another potential bias. A systematic review would help to avoid it. Also noticable is that many of the journals cited are so called 'open source' very recently established journals the quality of which is to be proven (see recent comments in 'Science'). In many cases in the subchapters no synthesis of results and their implications was made. Also many topics are addressed in several subchapters again and again under different titles. It may be better to have all in one. Overall though, the authors present a very useful text with some indications for future research. The research gaps area could have been elaborated better. There are numerous typos and references mentioned in the text but missing in the reference list and vice versa. I am not going to go into that since I expect the authors to carefull chack the text again and correct these cavities. (Stilianakis, Nikolaos, European Commission)
22	11	0	0	0	0	The Chapter in general is a very good overview and has a good, well balanced, summary and conclusions. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)

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23	11	0	0	0	0	The Chapter could provide stronger analyses of the findings. As it stands it reads like an an encyclopedia of studies without analyses of the findings. The chapter could highlight 3 – 4 main issues and not run through the gamut of all possible issues. Pregnancy intervals or UV radiation with a short paragraph from one study (and no discussion of the associated health benefits of say, vacation or Vitamin D production) seem to be examples of somewhat extended link to climate change. The result is that one loses sight of the forest because of the trees.Storms are a phenomenon with increasing potential for health impact and have more or less been left out.The lack of epidemiological evidence and strong studies that associate climate events to specific health outcomes could be better and clearly emphasized. In general the conclusions are right but few and rather general. Pg 37 Line 49 – 54 could have been said without this extensive literature review (ie health impacts of (these) diseases are … affected by many factors or Much reduction of health impacts can be avoided through provision of basic health services to the world's poor population). Research recommendations could be a little more directive and selective. The last para (pg 37 34 – 30) brings little to the recommendations. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
24	11	0	0	0	0	The executive summary includes strong comments on some impacts of climate change that might be questioned since there are contradicting views on those topics and since the content of the report does not always clearly justify such drastic conclusions. For example, the statement in 11.4.1.1 "for instance, there is an association of ambient temperature with suicide" needs explanation - why? Where? Are there figures? If the paper needs to provide worst-case scenarios, it should do so in a more balanced manner. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
25	11	0	0	0	0	Europe is mentioned in this section only with respect to the 2003 heat wave. Europe has much more to "offer" than just the heatwave. Recommend that you look at the Impact assessment of the EU Strategy on adaptation to climate change for more information on health issues. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
26	11	0	0	0	0	The whole chapter elaborates a lot on heat for obvious reasons but it would be good to have a more profound level of detail on other areas, e.g. infectious diseases. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
27	11	0	0	0	0	Concerning different imapcts and threats: more examples for different regions would be good to see. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
28	11	0	0	0	0	Overall a well written and well balanced chapter that covers what we know about climate change and health. (Lewis, Nancy Davis, East-West Center)
29	11	0	0	0	0	It might be useful to include somewhere a table with a general overview of the main health effects in different regions or a table with examples of adaptation measures. (GERMANY)

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30	11	0	0	0	0	If I am not totally wrong, the cut-off date for publications to be considered for review in this chapter (it's next draft) is still coming (July 2013). My feeling is that in 2013 there have been published many more papers on health effects of climate change that should be reflected. Especially in 11.7.2 Abrahamson V, Raine R (2009). Health and social care responses to the Department of Health Heatwave Plan. Journal of Public Health, 31(4):478–489. Harlan S.L. et al. (2006). Neighborhood microclimates and vulnerability to heat stress. Social Science & Medicine, 63(11):2847–2863. Harlan Sharon L. et al. (2006). Neighborhood microclimates and vulnerability to heat stress. Social Science & Medicine, 63(11):2847–2863. Mavrogianni A et al. (2009). Space heating demand and heatwave vulnerability: London domestic stock. Building Research & Information, 37(5-6):583–597. Oven KJ et al. (2012). Climate change and health and social care: Defining future hazard, vulnerability and risk for infrastructure systems supporting older people's health care in England. Applied Geography, 33:16–24. Rinner C et al. (2010). The Role of Maps in Neighborhood-level Heat Vulnerability Assessment for the City of Toronto. Cartography and Geographic Information Science, 37(1):31–44. Sheridan SC, Dolney TJ (2003). Heat, mortality, and level of urbanization: measuring vulnerability across Ohio, USA. Climate Research, 24(3):255–265. Wilhelmi OV, Hayden MH (2010). Connecting people and place: a new framework for reducing urban vulnerability to extreme heat. Environmental Research Letters, 5(1):014021. Wolf, T and GR McGregor (submitted and under review):: The Development of a Heat Wave Vulnerability Index for London, United Kingdom. Weather and Climate Extremes. WACE-D-13-00001 and Wolf, T, McGregor GR and A Analitis (submitted and under review): Performance Assessment of a Heat Wave Vulnerability Index for Greater London, United Kingdom Weather, Climate and Society. WCAS-D-13-00014 (Wolf, Tanja, WHO Regional Office for Europe)
31	11	0	0	0	0	The uncertainty is expressed in this chapter somewhat differently from IPCC's Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties (6-7 July 2010). It is suggested to reformulate such expressions according to the IPCC's Guidance Note. (CHINA)
32	11	0	0	0	0	In Chapter 11 of the report, climate geoengineering is considered as "side effects of mitigation measures". However it is important to underline that only climate engineering will give a possibility to avoid climatic crisis if mitigation measures are not effective enough. (RUSSIAN FEDERATION)
33	11	0	0	0	0	Balance of content Over representation of vector-borne disease relative to nutrition, disasters and environmental contaminants (other than air pollution). Focus on future scenarios undermined by lack of focus on current baseline, availability and quality of data. Suggest balance throughout of observations (past) current situation and predicted changes under climate change. (UNITED STATES OF AMERICA)
34	11	0	0	0	0	Dengue fever: The section on dengue fever (pp. 15-16) is brief and could include recent dengue fever activity in the Americas, including U.S. transmission documented along the TX border (CDC, 2007; Brunkard et al. 2007; Ramos et al. 2008) and in Florida (Radke et al., 2012) (UNITED STATES OF AMERICA)
35	11	0	0	0	0	It is surprising that so little emphasis is placed on the 2010 heat wave across Russia. Although it is mentioned in passing regarding increased fire and corresponding pollution, heat-related deaths well in excess of 10,000 are ignored. This is a major omission, particularly since the event was so anomalous, providing at least some evidence that it was partially due to climate change. (UNITED STATES OF AMERICA)
36	11	0	0	0	0	Language used for "malnutrition" sections must be standardised - currently have a wide variety of definitions that are confusing to the expert - will be very confusing to the lay reader. (UNITED STATES OF AMERICA)
37	11	0	0	0	0	Public health surveillance systems: There is limited emphasis on the importance of public health surveillance systems for climate sensitive diseases and health conditions. One option to elevate its importance is to include it in the Executive Summary in line 26, adding "maintain and strengthen public health surveillance systemsafter 'essential health services' in line 26, pg 3. (UNITED STATES OF AMERICA)

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38	11	0	0	0	0	Reviewer commends authors on their work. Reviewer offers following overarching comments. Is there a way to accommodate the exacerbating effect of pollutants on infectious diseases? Examples include dust and meningitis (the Meningitis Belt); air pollutants and tuberculosis. May be helpful to have a section wherein a national situation regarding multiple effectors are described in one place, for example mosquito-borne disease in China; or national food safety programs, or national water, sanitation, and hygiene outreach training, awareness and education efforts? Since the adaptation will in many cases be driven "top down" the projected impacts and proposed actions could be structured to address clusters of relevant issues, for example awareness of vectors rather than specific vector-borne diseases. Helpful if proposed in a format that matches WHO reporting, and hence some evaluation. There appears to be a notable lack of emphasis on the most vulnerable regions and populations. One idea might be to have boxes on specific ecological systems, e.g. the Himalayan watershed (>750m persons) representing intensified hydrological cycle, (drowning, water-borne infections, chemical contaminated runoff) and parallels with the US Misssissippi/Misouri system; The Sahel/Sahara or Gobi for desertification (poverty, emigration, meningitis, dust and particulates) with parallels in Australia and US southwest; and take your pick of the tropical megacities for heat island effects. The overall tone is of lowered level of concern from previous reports and literature. Is this intentional? Many thanks for your contributions to this important effort. (UNITED STATES OF AMERICA)
39	11	0	0	0	0	The chapter was well written and clear. The sections on vulnerability and adaptation, and the addition of a focus on the role of human institutions were useful additions from AR4. Overall however, the chapter seemed dismissive of potential health impacts leaving the reader with the impression that risks were relatively insignificant and that improvements in public health systems would suffice to acceptably manage those risks. The issue of emerging health threats, or surprises, and the potential likelihood of increases in complex emergencies were not adequately addressed. Also missing from the chapter were the topics of 1)health risks from harmful algal blooms and related illness; 2) climate impacts on access and nutritional value of fisheries and aquaculture as part of the food supply and underlying vulnerabilities, 3) the role of water sanitation and hygiene as both part of the health impact pathway and the adaptation strategy; 4)the anticipated health impacts of dust and other wind-borne diseases such as meningitis; and 5) the role of surveillance as both prediction tool necessary for early warning, and as co-benefit or adaptation strategy. The topic of Climate Altering Pollutants and air quality seemed to be given more page space than warranted given the above mentioned items that were not covered adequately so would suggest re-balancing the chapter accordingly. (UNITED STATES OF AMERICA)
40	11	0	0	0	0	The Human Health Chapter does not address coastal related health impacts well and should highlighting this element in the food and water-borne section or as a separate section. The Human health chapter should also cross-reference some of the health impacts covered in the Coastal chapter 5, which is more robust regarding coastal related health impacts and includes references that should also be cited in the health chapter. (UNITED STATES OF AMERICA)
41	11	0	0	0	0	This health chapter is well-organized and covers most of the key areas of concern for the health sector. There is, however, inconsistency in the level of detail in describing subsections (that is, sometimes single studies given full paragraph, versus other times when a series of papers cited together for a single sentence. Of course this may be natural, but the rationale for length of detail from one study to the next needs evaluation by the convening LAs and Review Editors particularly. Finally, even though not required to be comprehensive review, there are key studies of direct relevance that do not appear. (UNITED STATES OF AMERICA)
42	11	0	0	0	0	Water scarcity: Public health impacts related to water scarcity åÐ through lack of availability and through diminished water quality åÐ should be more prominent in the report. There are a few mentions scattered throughout the chapter, but climate impacts on water availability and quality should be more centrally discussed. (UNITED STATES OF AMERICA)

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43	11	0	0	0	0	Waterborne Disease: The section on waterborne disease is brief and doesn't include adequate reference to exposure pathways associated with extreme precipitation, storm surge, combined storm and sewer overflows, inability of water treatment systems to cope with extreme events and heavy precipitation, etc. (UNITED STATES OF AMERICA)
44	11	0	0	0	0	Table of contents/structure: in 11.3 a small sub-chapter on "behaviour" as risk factor or determinant could be considered (this could include change of behaviour with climate change and work on perception of risks) (Matthies, Eva Franziska, Consultant)
45	11	0	0	0	0	1)In principle the chapter is well structured but, specially for risk management, vulnerability assessment (11.5) and adaptation governance (11.7, 11.8) keeps a prevalent focus on health and socio economic sectors in its main conclusions and general approach, thus missing the opportunity, to stress the role, together with the other no-health sector policies, of environmental risks factors and land (mis)use in enhancing population vulnerability to CC ecosystem mediated health impacts and in extreme conditions. Even if these issues are included in environmental chapters to stress health linkage will support a more health focused adaptation of this sectors and improve overall climate sensitive health risk management. 2) Further comment regards the highlighted role of birth control and/or an improved access to reproductive health services in reducing CO2 emissions (co benefit para 11.9), classified as high confidence evidence (executive summary). Statement, strength of evidence and the approach of expand health related assessment into climate justice fields are still debatable and controversial (for all see Report "Climate change, population, sexual and reproductive health and rights; an annotated bibliography 2010" Asian-Pacific resource and research Centre for women.) http://www.arrow.org.my/IDC/Bibliographies/ClimateChange_Annotated.pdf (ITALY)
46	11	0	0	0	0	Add references Smargiassi (see attached articles) (Larrivee, Caroline, Ouranos inc.)
47	11	0	0	0	0	Dear Authors, overall, this is a rich chapter. Four issues I would like however to highlight, in general: (a) the literature selected does include a number of reviews, which not necessarily can be claimed systematic (probably 20%); (b) within a public health approach, i am missing clarity, focus, but more than all priority setting; if this latter is not possible because of the type of studies available it needs to be pointed out in research priorities (c) lack of balance (importance given to issues which from a PH persepctive are insignificant, while other are scarcely mentioned and (d) the summary could be enriched in clarity and focus. Developments since AR4, is week in its explanations and repetitive in citing only two references: There appears to be a discrepancy in the evolution since AR4 and now - as of studies mentioned. In particular there are to my opinuion four issues to highlight: (a) less (C) modelling studies (including new emerging approaches); (b) more country based case studies and assessments (pitty you dont refer to the national assessments); (d) more adaptation case studies (e) some new health concerns (e.g. occupational health and chemicals) and (f) additional work on co-benefits. 11.1.3 poorly explained; 11.2. air pollution is not a natural system (think industry would like this expression here); Current health stsatus - could be better linked to initial parts on the health description in the world; 11.3.5 conceptually misleading - heading should be health systems and public health - it goes far beyond infrastructure (ps also look at the infrastructure chapters - avoids you duplications) - four issues important (a) access to health care; (b) financing (e.g out of pockeyt payment empoverishment and cc can contribute) (c) increase need of treatment (e) new emerging diseases - health system are increasing causing contributing to population vulnerability or are themselves a vulnerability factor. Session on heat: ridiculously poor only some reviwes are mentioned (which are not systematic) while original studies are left out (BIAS!); HEAT mechanisms - dismisses the entire theory of the heat shock protein published in NEJM in 2012, on which most of the current hypothesis are based - the remaining are a lot of assumptions - suggest to look at earlier summaries in earlier IPCC reports; why do you recite the heatwave and some again (with the exception of one) of the non original stuides (e.g. 50 original papers were published so far accross europe on the 2003 heat-wave). Again, Hajat, Ebi etc are reviews!;

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47.2	11	0	0	0	0	Dengue fever - a lot of update is available from WHO - published in 2013 (www.who.int - search dengue) full systematic analysis carried out as well as ECDC Roger et al. ; Air pollution - please add WHO Euro revision of the air quality guidelines - very important work in the guidelines and Grade system development; Allergic disorders, lack of understanding of the complexity - poor - again non systematic review paper; Mental Health weak, in particular last paragraph build on one single on systematic review; ADAPTATION: lack of reflection of all the national health adaptation strategies and action plans developed - which in some cases are as good if not better than some of the general reviews here included; - it is also very important e.g. to add a table on the national health adaptation strategies developed - e.g. Diarmid as author could ask through WHO to obtain those references. The current adaptation description has some useful issues, but is for many countris not policy relevant - and dismisses some of the key problems (if not researched, then it is a gap) - a real gap - and such a pitty (we can send you at least the european references - which are published in the latest EEA report (april 2013); Migration - please read the report of the IOM on migration and climate change (i think 2009) to understand what migration means - i is not the between state migration which will provide the major issues - it will be the temproary even within state displacement - which could create significant problems - LOW PROBABILIT- some damage reduction si possible through anticipation - eg.g hurricanes US (paper 2000 cited in AR4) FIG 11.3 - is adapted from Confalonieri et al (at leat it is nicer colourful) Figure Chadee (2007) only 3 years of data - too poor - not longer available - does not say a lot; Fig Zou et al, was already in AR4 - mentioned; 11.7 overlaps - to be distinguished - avoid as of other figures throughout WG1 (Menne, Bettina, WHO)
48	11	0	0	0	0	Add reference: Vardoulakis S., Heaviside C. (Eds), 2012. Health Effects of Climate Change in the UK 2012 – Current evidence, recommendations and research gaps. Health Protection Agency. Centre for Radiation, Chemical and Environmental Hazards, UK. (Vardoulakis, Sotiris, Health Protection Agency)
49	11	0	0	0	0	General comment: Overall a good chapter and I felt used reasonable levels of evidence and at least set out briefly how the literature was reviewed, including important caveats. However, I think the issues related to mental health are not well managed and the text needs significant editing and often veers more into opinion. There is a need for much greater clarity on which mental health disorders are being referred and at times the text is in danger in directly linking mental health problems to crime. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
50	11	0	0	0	0	Chapter 11, addressing human health, provides an informative and up to date overview of many human health considerations and associated sources and findings. This chapter, however, is very much a public health consideration of human vulnerability to, and the projected human impacts of, changing climate regimes and unfolding physical environmental impacts and scenarios. Almost completely ignored are contemporary psychological impacts of the threat of climate change, which constitutes a very current and potent environmental stressor, with much of the world's population exposed to and experiencing multi-media coverage and communications relating to this extremely serious and consequential global environmental phenomenon and threat. In addition to many publications and reports which highlight these more psychological and mental health and well being impacts of climate change (e.g., Albrecht, 2011; American Psychological Association, 2009; Australian Psychological Society, 2010; Climate Institute, 2011, Fritze et al., 2008; Gow, 2009; Hamilton, 2010; Hughes & McMichael, 2011, Morrissey & Reser, 2007; Reser et al., 2011), there are a growing number of research reports documenting adverse psychological impacts associated with this chronic threat and stressor (e.g., Agho et al., 2010; Doherty & Clayton, 2011; Searle & Gow, 2009, 2010; Reser et al., 2012a,b,c). (Reser, Joseph, Griffith University)

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51	11	0	0	0	0	GENERAL comments made here are for Chapter 11 authors' consideration. Specific data/examples are commented on below and are taken from the attached supprting document: Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry. See pages 1-2, and 8-10. Identification of indigenous social and historical markers when assessing indigenous vulnerability and resilience to climate change adaptation is key to identifying strategies to build adapatative health capacity in both resource rich and in resource poor indigenous communities. Rationale for Suggested Modifications in Language Related to Indigenous Peoples: General statements about the uniqueness and special relationship of indigenous to ancestral lands encapsulates a singular yet inaccurate view of indigenous as a part of human settlements. Deeper analysis is required to understand the demographic and settlement paterns situation of indigenous in Central and North America. Such analysis can benefit the creation of a positive framework for approaching adaptation strategies and programs for indigenous peoples. Excluding immigrant indigenous as a socially identified sector disallows an accurate analysis of their adaptive capacities, even when displaced, precisely because their culutres differ greatly from that of other displaced peoples (e.g. recent victims of extreme weather events: Katrina, Sandy, Joplin ,MO. Moore, Okla., etc.). Indeed one construct in this exclusion, is unfortunately the bi-frucation of Central America from Meso-America (Southern Mexico and the Yucatan Peninsula) in terms of the structure of chapters. It exacerbates the task of analysis for indigenous peoples in Central America that experience similar climatic impacts as do those in southern Mexico; a geographic separation designated by separate chapter 27 on Central and South America from chapter 26 on North America. While such delineations are standard UN development regions , it adds greatly to the burden of assessing impacts on indigenous from that region (Central American and So.Mexico) for two reasons: 1) the low land regions of Mexico (Chiapas, Campeche, Tabasco, Quintana Roo) and Guatemala (Peten, Izabal, Chiquimula) within the Yucatan Peninsula and Atlantic coastal sub-region are climatically inseparable. The range of indigenous settlement types demonstrates why this matters. While permanent indigenous settlements in the North America may constructively manage integral parts of eco-systems and watersheds, like the Anishinaabe (Chippewa/Ojibwa. Pottawatomie, etc.) who inhabitant the region of the Great Lakes, other indigenous communities are nearly or completely displaced like the Aniyunwiya (Cherokee), or are more recently formed like the Frente Indigena de Organizaciones Binacionales (Oaxacans from Triqui, Zapotec,and Mixteco communities) in Los Angeles California and Oaxaca, Mexico and indeed often contain the most marginalized and often the least resourced of any population due to voluntary and increasingly forced migration. The range of indigenous settlement types demonstrates why this matters. While permanent indigenous settlements in the North America may constructively manage integral parts of eco-systems and watersheds, like the Anishinaabe (Chippewa/Ojibwa. Pottawatomie, etc.) who inhabitant the region of the Great Lakes, other indigenous communities are nearly or completely displaced like the Aniyunwiya (Cherokee), or are more recently formed like the Frente Indigena de Organizaciones Binacionales (Oaxacans from Triqui, Zapotec,and Mixteco communities) in Los Angeles California and Oaxaca, Mexico and indeed often contain the most marginalized and often the least resourced of any population due to voluntary and increasingly forced migration. The three part Framework is outlined in the next cell below: (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
51.2	11	0	0	0	0	

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52	11	0	0	0	0	[Continued] Analytical Framework for Indigenous Adaption to Climate Change. An analytical frame that may better orient adaptation specialists in identifying and ultimately measuring resilience and vulnerability of indigenous communities for adaptation to climate change is needed. The framework can overcome the artificial (but necessary for the IPCC AR 5 review)) separation of peoples from the region they live in by accurately identifying them in temporal and future time and space given the task before the IPCC to project future impacts within this report. A suggested three part framework is outlined below. Part I: The Delineation of the relationship of indigenous peoples to land into four spheres: 1. Living in ancestral homelands (70-100% of population remain). 2. Permanently removed from ancestral homelands (45-100% of population removed). 3. Partially dispossessed and displaced (10-45% of population displaced). 4. In transmigration outside ancestral areas. (25 -100% of population displaced). (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
53	11	0	0	0	0	[Continued] Part II: The Degree of migration for indigenous communities / peoples can be qualitatively approximated by the percentage of immigrant population using an intentionally disproportionate scale based on the depletion of human and capital resources. Effects of migration are accumulative and include a tipping point. Therefore a strict proportional Likert scale would prove inaccurate. Low: (10%-15%) Incipient Migration: partial migration of communities; more single youth less head of households, not the most marginal. Medium low: (15%-25%) Catalectic Migration: regularization of individual migration, start of family migration, changes in migrant demographic: more head of household in mix, remittance system established. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
54	11	0	0	0	0	[Continued] Medium: (25%-40%) Patterned & Cyclical Migration: cyclical migration encourages use of migration to create livelihood for individuals and head of households (HHH) as remittances provide cash infusions), HHH migration weakens community participation, educational enrollment drops significantly,). This is the range within which the tipping point for climate change adaptation negatively changes unless an intervention produces a reversal. Medium High: (40-60 %) Remittance Dependent: regularized remittances overtake or on par with main economic activity for livelihoods, local gender based hollowing out effect for males, stagnated decision making process, informal/formal community social structures emerge in relocation area. High: (60%-100%) Permanent Migration: migrants are captured by economic production in destination location, legal restrictions highly diminish cyclical migration, communal cultural practices parically or wholly abandoned) path dependent on outside financial and human capital, land base vulnerable to acquisition by non-community members, collapsing social structure and dysfunctional community based decision making capacity. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
55	11	0	0	0	0	[Continued] Part III: Degree of Adaptive Capacity can be qualitatively approximated by a rough calculation of the demonstrated capacity and pattern of human and financial capital investment. High: (75%-100%) Underutilization of Human Capital: normal human development pattern is generally viable, but partial migration of community members due to lack of age/gender based opportunities; more single youth, less head of households. Medium high: (60-75%) Diffusion of Human Capital: regularization of migration as livelihood source, economic decision making begins change from community to family based economy as remittance system established. Medium: (40-60%) Path Dependent Tipping Point: migration partially eclipses development progress as it weakens community decision making while lowering local human capital and financial investment in local infrastructure (housing, commons) , remittances become viable alternative to traditional economic activity, polarization of HH incomes. Within this range a tipping point is reached unless a community directed intervention produces a reversal. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)

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56	11	0	0	0	0	[Continued] Medium low: (20-40%) Displacement of Human Capital: regularized remittances overtake traditional main economic activity for livelihoods, local male gender based hollowing out effect, stagnation in communal decision making process, formalized community structures appear in relocation area. Low: (10-20%) Dispossession and Displacement: Path dependent on outside financial and human capital, land base vulnerable to acquisition by non-community members, collapsing social structure and dysfunctional community based decision making capacity, family divisions and further non-voluntary migration due to depleted human and financial resource base. Limitations: The three part analytical framework relies on community based and institutional based assessments. Terminology for land possession is not necessarily interchangeable, but sub-region or country specific. Therefore terminology differs within sub-regions for North, Central , and South Africa, and for North, Central , and South America). A partial list for land base terminology might be: ancestral homelands, traditional territories, homelands , reserves, reservations, trust lands, catons, communities, etc. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
57	11	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 11 and is available in the supporting material web page. Chapter team may wish to rectify these errors before starting to work on SOD revisions and FGD preparation. (Chatterjee, Monalisa, IPCC WGII TSU)
58	11	0	0	0	0	The chapter has rich discussions on several interdependent topics. For FGD preparation, authors may wish to synthesize key messages in tables or in form of other synthetic elements as 'finding rich capsules' that people can use from this assessment. (Chatterjee, Monalisa, IPCC WGII TSU)
59	11	0	0	0	0	1) Overall -- The chapter team has developed a good 2nd-order draft. In the final draft, the chapter team is encouraged to continue prioritizing compact and rigorous assessment, effective figures, clear writing, and high specificity. (Mach, Katharine, IPCC WGII TSU)
60	11	0	0	0	0	2) Coordination across Working Group II -- In developing the final draft of the chapter, the chapter team should continue to ensure coordinated assessment, both in the chapter text and at the level of key findings. As appropriate, cross-references to the sections of other chapters and/or their assessment findings should be used, continuing to ensure that overlaps are reduced and assessment harmonized. (Mach, Katharine, IPCC WGII TSU)
61	11	0	0	0	0	3) Harmonization with the Working Group I contribution to the AR5 -- In developing the final draft, the chapter team should also ensure all cross-references to the Working Group I contribution are updated, with discussion of climate, climate change, and climate extremes referencing the assessment findings in that volume. (Mach, Katharine, IPCC WGII TSU)
62	11	0	0	0	0	4) Approach to literature -- The chapter team should and does focus on literature published since the cutoff date for the 4th assessment report. However, in some places, where the chapter team indicates that no literature is available, it is not clear whether robust information prior to 2006 was published or whether no papers on the specified topic have ever been published. Where literature since 2007 is sparse but previous literature is available, the chapter team should at least provide indication of the state of knowledge in 2007. (Mach, Katharine, IPCC WGII TSU)
63	11	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)

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64	11	0	0	0	0	6) Characterization of future risks -- In characterizing future risks for human health, as can be robustly supported by the literature, the chapter team should continue to indicate the extent to which risks (or key risks) can be reduced through mitigation, adaptation, or other responses. That is, is it possible to indicate how risks may increase as the level of climate change increases or, potentially, to indicate the relative importance of changes in mean conditions, as compared to changes in extreme events, as compared to potential non-linear changes associated with biome shifts or tipping points? And then, how much can risks be reduced through adaptation or development, in the near-term and the long-term? How are factors or stressors that multiply risks relevant in this context? As supported by its assessment of the literature, the author team should consider communicating risks for the era of climate responsibility (the next few decades, for which projected temperatures do not vary substantially across socio-economic/climate scenarios) and for the era of climate options (the 2nd half of the 21st century and beyond). As might be helpful to the chapter, the framing of table SPM.4 could be considered in characterization of future risks, along with the key and emergent risk typology of chapter 19. (Mach, Katharine, IPCC WGII TSU)
65	11	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. For every statement within the executive summary, the chapter team should be able to determine, readily, its traceable account within the assessment of the chapter--how the available literature supports the statement and what expert judgments were made by the author team. In addition to highlighting key findings throughout the chapter and characterizing future risks (see the previous comments), the chapter team is encouraged to consider themes emerging across chapters, indicating for example how extreme events have demonstrated adaptation deficits and vulnerability to date and may relate to future risks, how limits to adaptation may be relevant in the context of this chapter, how adaptation experience has been relevant to date, and how interactions among mitigation, adaptation, and sustainable development may occur. (Mach, Katharine, IPCC WGII TSU)
66	11	0	0	0	0	GENERAL COMMENTS: I congratulate the author team for all their work on the SOD. Please see my detailed comments for suggestions related to specificity of ES findings and traceable accounts, refining figures and tables, calibrated uncertainty language, and various specific clarifications. I have one general comment. The executive summary and the chapter text need a comprehensive check of the traceability of findings presented in the executive summary to supporting chapter sections and to underlying literature. Currently, these linkages are not as tight as they could be in some cases, and my specific comments point out opportunities for such tightening. (Mastrandrea, Michael, IPCC WGII TSU)
67	11	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 11, this includes presentation of observed impacts and vulnerabilities in section A.i and Box SPM.3/TS.4, sectoral risks in section C.i and Box SPM.5, and adaptation/mitigation/impacts interactions in section D.ii. Are there opportunities for presenting chapter findings and material in a way that further supports broad themes highlighted in the summary products and that facilitates additional cross-chapter synthesis in specific findings or figures/tables? Do the existing summary product drafts suggest additional coordination that should occur between Chapter 11 and other chapters at LAM4? (Mastrandrea, Michael, IPCC WGII TSU)
68	11	0	0	0	0	Again unaware that the globe is not warming for gthne pas 15 years and obliviosness to the disastrous tgoll on human health of the recent cold winters in the Northyern Hemisphere (Gray, Vincent, Climate Consultant)
69	11	3	10	0	0	Should read: "… is sensitive to climate change and weather patterns …" because climate change is the important and dominant aspect and should come first; wheather patterns are secondary to it and should come second only (Zacher, Winfried, Germanwatch)

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70	11	3	10	3	12	Suggest: The health of human populations is susceptible to shifts in weather patterns… (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
71	11	3	10	3	17	The process of urbanization should be mentioned both, as integral component of climate change (especially increased air pollution, heat waves and Urban Heat Island phenomenon) and as source of specific diseases (cardiovascular, respiratory, asthma). (POLAND)
72	11	3	11	3	11	We suggest changing "humidity" to "precipitation". (UNITED STATES OF AMERICA)
73	11	3	11	3	12	humidity extremes is not exactly correct. High humidity in combination with moderate temperature, low windspeed and low solar irradiation is no thread for health, on the other hand is also a very low humidity not necessarily connected to negativ health effects. you want pobably state that high temperature in combination with high humidity values are negative for human health (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
74	11	3	12	0	0	Should read: "…healt will be damaged…" Saying "may be" includes the possibility of "may not be" which is not correct given the evidence. (Zacher, Winfried, Germanwatch)
75	11	3	12	3	12	Add 'and episodes of poor air quality.' following 'fires'. (UNITED STATES OF AMERICA)
76	11	3	13	0	0	Shifting pattern of disease vector and adaptation disease VIRUSES (such as malaria viruses adapting warming conditions in the mountainous areas) (AKHTAR, RAIS, ALIGARH MUSLIM UNIVERSITY)
77	11	3	13	3	13	Please change "disruptions to changes" to read 'ecological changes'. (UNITED STATES OF AMERICA)
78	11	3	14	3	15	This statement about variability as a risk factor is not clearly supported by either of the referenced chapter sections. Support is required for inclusion. (Mastrandrea, Michael, IPCC WGII TSU)
79	11	3	16	3	16	We think that " in response" seems a little vague. We suggest changing to "human health outcomes". (UNITED STATES OF AMERICA)
80	11	3	16	3	17	This statement about non-linearities is not clearly supported by either of the referenced sections, but does appear to be partially supported by section 11.4.1.1. Please add to the line of sight. This section does not talk about "climates becoming more extreme," however. Do you mean that heat wave frequency and intensity is increasing? Please clarify this point and provide line of sight to chapter text citing appropriate support. (Mastrandrea, Michael, IPCC WGII TSU)
81	11	3	19	3	19	The sentence does not make sense: “most important effect”, “climate change”, “exacerbate” and “risks” are incommensurable variables. This proposition can not be true, of false. (Godefridi, Drieu, Cogito)
82	11	3	19	3	19	This finding should be appropriately qualified. Presumably, the chapter team is referring to the most important effect of climate change for human health, given that the chapter has not assessed the entirety of the literature across all sectors. (Mach, Katharine, IPCC WGII TSU)
83	11	3	19	3	19	It is unclear what is meant by "most important" here. Most important health effect? Most important of all effects of climate change? A different framing is needed, as labeling of importance is a value judgment that will be different for different people. Further, this statement is not supported by the associated chapter text. (Mastrandrea, Michael, IPCC WGII TSU)
84	11	3	19	3	23	Food-born diseases should be mentioned. (POLAND)
85	11	3	19	3	24	Add separate point that emphasizes the potential for surprises and emerging risks for which we are unprepared to detect or manage. Examples include the excess heat deaths in France, or the vibrio outbreaks in Alaska and elsewhere. Also include here the role of surveillance in early detection and warning and as part of an adaptation strategy. Onifade TM, Hutchinson R, Van Zile K, Bodager D, Baker R, Blackmore C. Toxin producing Vibrio cholerae O75 outbreak, United States, March to April 2011. Euro Surveill. 2011;16(20):pii=19870. (UNITED STATES OF AMERICA)

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86	11	3	19	3	24	The authors should consider creating a separate sentence that addresses changes in climate and weather may trigger new infections or change the range of existing health risks. The pathways may not be well understood but the impact of emerging risks or surprises can destabilize a population or region and have both economic and health impacts. Change to high confidence. (UNITED STATES OF AMERICA)
87	11	3	19	3	24	We suggest deleting 'by far' in this formulation- there is not a sufficient amount of literature to support the more extreme statement. (UNITED STATES OF AMERICA)
88	11	3	20	3	20	Consider changing the category of 'low confidence' to 'moderate confidence' after "Although new infections and other conditions may emerge under climate change". (UNITED STATES OF AMERICA)
89	11	3	20	3	21	The statement that 'new infections and other conditions' emerging is 'low confidence' appears too conservative. Consider change to 'moderate confidence'. New conditions and infections, such as SARS, have continuously emerged in the human population, and will continue to do so, even without climate change. As per prior sentence, climate change will likely exacerbate these new conditions. (UNITED STATES OF AMERICA)
90	11	3	21	3	23	Please consider the logic of these sentences, as currently the implication is that under-nutrition is a disease. (Mastrandrea, Michael, IPCC WGII TSU)
91	11	3	22	0	0	risk of undernutrition and malnutrition from climate change (AKHTAR, RAIS, ALIGARH MUSLIM UNIVERSITY)
92	11	3	25	0	0	Should read: " …are programs that provide and extend basic public health measures…" The people most at risk often do not have any access to public health measures. Although "extend" could be understood as reaching out to these people it could easily be misunderstood as "improve" or "intensify" where they exist. And this is not enough. (Zacher, Winfried, Germanwatch)
93	11	3	25	3	25	We suggest changing "immediate term" to "near-term". (UNITED STATES OF AMERICA)
94	11	3	25	3	26	Non sequitur. Why public, not private? (Godefridi, Drieu, Cogito)
95	11	3	25	3	27	This is obviously a very key point (Lewis, Nancy Davis, East-West Center)
96	11	3	25	3	27	Please add integrated surveillance and early warning systems, access to safe water, " after increase capacity for. (UNITED STATES OF AMERICA)
97	11	3	25	3	27	What about non-health sector interventions that may have much larger population-wide effects such as agriculture, transportation, etc.. Based on the ecosytem- and institutions-mediated text, add something like, "extend basic public health ....AND with better coordination with adaptation across relevant non health sectors." (UNITED STATES OF AMERICA)
98	11	3	25	3	27	Perhaps good to expand on this section. The rest of the summary is focused on impacts, and this is the only section really concentrating on adaptation opportunities. I suggest giving more examples, including the use of early warning systems based on both disease incidence data and climate information to trigger action to prevent impacts. Reference 11.7.1 (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
99	11	3	25	3	27	see general comments 1) (ITALY)
100	11	3	25	3	27	The logic of "therefore" is not clear, and it would be best to make this paragraph stand on its own. Additionally, non-bold supporting statements should be provided for the finding. (Mach, Katharine, IPCC WGII TSU)
101	11	3	25	3	27	This statement is supported by section 11.7, not 11.6. That section discusses adaptation options, but does not really explain why the identified measures are seen as "most effective" in the immediate term. Further, it is not clear what "therefore" refers to here--suggest deletion or clarification. (Mastrandrea, Michael, IPCC WGII TSU)
102	11	3	26	0	0	Public health measures, particularly acess to safe water and sanitation in the context of developing countries, an essential (AKHTAR, RAIS, ALIGARH MUSLIM UNIVERSITY)

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103	11	3	29	0	0	Should read "… has increased levels..." as a reduction could also be seen as a "contribution" to a level. (Zacher, Winfried, Germanwatch)
104	11	3	29	3	32	Section 11.4 covers heat waves and observed impacts of floods. Section 11.5 should be added to the line of sight to support statements about disease vectors. But these sections do not clearly support the overall conclusion about the contribution of climate change to levels of ill-health and the comparison with other stressors. Support is needed to retain this conclusion. (Mastrandrea, Michael, IPCC WGII TSU)
105	11	3	29	3	33	Please change to separate heat from the other impacts. It currently reads that SLR is related to heat wave casualties. Suggest "in recent decades, climate change has contributed to levels of ill health (likely). Though difficult to quantify due to multiple interacting factors, changes in temperature, rainfall and coastal ecosystems have altered distribution of some water borne illness and disease vectors and reduced availability of nutritional food for vulnerable populations. (UNITED STATES OF AMERICA)
106	11	3	29	3	48	there is inconsistency between the two paragraphs in terms of health risks and confidence ranking (ITALY)
107	11	3	31	3	32	In this statement of attribution of current health impacts, the authors link heat, food production and disease vectors and assign moderate confidence to the combined statement. The literature suggests there is higher than moderate confidence for the attribution of extreme heat events as a current impact of climate change. Perhaps different levels of confidence could be assigned to different impacts? (UNITED STATES OF AMERICA)
108	11	3	31	3	32	The uncertainty qualification to the statment "Changes in temperature, rainfall and sea-level have altered distribution of some disease vectors, increased heat wave casualties, and reduced food production for vulnerable populations" reads "moderate confidence". I think this should be "medium confidence" for consistency with the rest of the report (and with repetition of this statement in TS and SPM). (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
109	11	3	32	3	32	Please be consistent: here it is written [moderate confidence] - it should be [medium confidence] as written after the same para in TS p. 16 line 16. (GERMANY)
110	11	3	32	3	32	The chapter team should ensure that the statement about food production is fully supported by the assessment of chapter 7, 13, etc. (Mach, Katharine, IPCC WGII TSU)
111	11	3	35	0	0	After having emphasized in Line 29/30 that up till now the ill health resulting from climate change have been "relatively small" the formulation in line 35 does not adequately express that this is going to change. Therefore line 35 should read: " …next few decades major increases in ill-health compared to no climate change will occur. Mainly they will be caused through:" (Zacher, Winfried, Germanwatch)
112	11	3	35	3	36	The references to scenarios of climate change here could be made with more precision and clarity. For example, it could be stated that "climate change projected across the RCP scenarios through 2030-2040 will..." (Mach, Katharine, IPCC WGII TSU)
113	11	3	35	3	36	I find this conditional formulation odd--it would be more informative to be clear about both the timeframe and the magnitude of climate change considered for these statements. (Mastrandrea, Michael, IPCC WGII TSU)
114	11	3	35	3	48	In the SREX report there was low confidence regarding the projections of flooding events, though more confidence in projections for an increase in heavy rainfall events that could lead to flooding. While the confidence regarding the statement on flooding seems to have increased somewhat (Chapter 3, WG2 SOD), the confidence isn't that high regarding projections for floods. Recommendation is to clarify whether the statement here refers to high confidence with respect to heavy precipitation events or if it refers to flooding events then consider adjusting the confidence level. Also, if storms become more intense but occur less frequently how will that tradeoff affect human health? (Landuyt, William, ExxonMobil Research and Engineering)
115	11	3	37	0	0	Not sure if that is true. In general, deaths are decreasing from these disasters (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)

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116	11	3	37	3	37	Delete commas after 'disease' and 'floods' (they are not necessary). (Burt, Peter, University of Greenwich)
117	11	3	37	3	37	Please add 'and worse air quality' following 'fires'. (UNITED STATES OF AMERICA)
118	11	3	37	3	37	From this line, it is clear that "Greater incidence of injury, disease and death" will occur, but it is suggested this is due to "more intense heat waves, stroms, floods, and fires". While I agree with the increase in intensity of heat waves and maybe storms, it is not clear what is meant by "more intense floods" or "more intense fires" or how these are related to climate change. Should this not be "more frequent floods and fires"? (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
119	11	3	37	3	38	A more conditional framing is needed for this expected outcome, since not all of these extremes are projected to increase in intensity. Very careful coordination with the findings of working group 1 should be ensured in developing a more qualified and conditional framing here. (Mach, Katharine, IPCC WGII TSU)
120	11	3	37	3	38	Section 11.4 only discusses projected impacts of changes in heat waves--storms, floods, and fires are not supported by the chapter text. Please provide support or remove these items. (Mastrandrea, Michael, IPCC WGII TSU)
121	11	3	37	3	42	Please consider the geographic generalization of these statements. Do they apply equally to all relevant regions, or are there important regional differences? (Mastrandrea, Michael, IPCC WGII TSU)
122	11	3	39	0	0	Global food production may actually be increasing (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
123	11	3	41	3	41	Inability to work is not ill-health. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
124	11	3	41	3	41	Section 11.8.1 contains a clearer description of relevant evidence than 11.6.2.4. Consider citing both sections or merging the material into one section (in 11.6). (Mastrandrea, Michael, IPCC WGII TSU)
125	11	3	41	3	42	This reviewer's overall impression of the data is that there is very high confidence in risks of food-and water-borne disease increase with increased frequency of extreme precipitation, flooding, and storm surges, however the direct link between climate change factors and vector-borne disease is less robust, perhaps high confidence. Authors may consider separating these. (UNITED STATES OF AMERICA)
126	11	3	42	3	42	" after increased risk of ....to be added "air born allergens" and then continuation of the existing sentance" (Kendrovski, Vladimir, World Health Organization Regional Office for Europe)
127	11	3	42	3	42	We suggest changing "vector-borne infections" to "vector-borne diseases". (UNITED STATES OF AMERICA)
128	11	3	43	3	43	We suggest changing "impacts of cold" to impacts of cold weather events or impacts of low temperatures. (UNITED STATES OF AMERICA)
129	11	3	43	3	44	Delete "reduction of disease-carrying vectors", since this pronouncement cannot be found in chapter 11.5. as such. (GERMANY)
130	11	3	43	3	45	This reviewer is not aware of literature showing reduction of disease-carrying vectors. "Out-weighed" may be an understatement. (UNITED STATES OF AMERICA)
131	11	3	43	3	45	Section 11.4.1.2 also provides relevant support. (Mastrandrea, Michael, IPCC WGII TSU)
132	11	3	46	3	48	This statement is misleading to me: will impacts be reduced through rapid development or through good social and economic status/infrastructure/? Is it sure that impacts will be reduced mong the poorest and least healthy groups?? (Wolf, Tanja, WHO Regional Office for Europe)
133	11	3	46	3	48	These statements are not supported by section 11.7. Please provide support or remove this bullet. (Mastrandrea, Michael, IPCC WGII TSU)
134	11	3	50	3	50	Greenhouse gases are not pollutants. (Tol, Richard S.J., Vrije Universiteit Amsterdam)

#	Ch	From Page	From Line	To Page	To Line	Comment
135	11	3	50	3	51	Consider revising statement to explain how different CAPs can affect human health to varying degrees; also H2O in its gaseous form is a significant GHG but not dangerous to human health. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
136	11	3	50	3	51	This statement could be clarified. It would be beneficial to indicate more precisely what is meant by "essentially." Additionally, the dual usage of "implications" is not as clear as it could be, and it would be preferable to specify more directly what is meant in each part of the sentence. (Mach, Katharine, IPCC WGII TSU)
137	11	3	50	3	54	Please add mortality that is due to air pollution. (UNITED STATES OF AMERICA)
138	11	3	50	3	54	It would be very useful to clarify, as done in Box 11-4, that some of the referenced health implications are indirect effects of non-CO2 CAPs. Likewise, please specify that "these air pollutants" in line 52 refers to particle air pollution and ozone. Otherwise, this reads as implying that direct inhalation of all non-CO2 CAPs (e.g., methane) leads to direct health implications. For clarity, I would suggest adding section 11.5.3 to the line of sight in addition to Box 11-4. (Mastrandrea, Michael, IPCC WGII TSU)
139	11	3	50	4	19	Increase in occupational health riskcaused by climate change should be mentioned. (POLAND)
140	11	4	2	4	3	This statement needs to be carefully and rigorously coordinated with information available in the working group 1 report. Additionally, the descriptor "IPCC" should not be used, as the pathways were developed independently. Revised wording for this statement used within the summary for policymakers could be considered here. (Mach, Katharine, IPCC WGII TSU)
141	11	4	2	4	4	It is important to accurately reflect the projected temperatures under RCP 8.5 reported by Working Group I both here and in the underlying text. Please ensure clear traceability and accuracy for this statement. In addition, the RCPs were not developed by the IPCC, so it is not accurate to characterize them as IPCC Representative Concentration Pathways--please delete "IPCC." (Mastrandrea, Michael, IPCC WGII TSU)
142	11	4	2	4	8	This does not belong in the chapter on health. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
143	11	4	2	4	8	We believe there are several issues with this statement: 1) why only RCP 8.5? Perhaps the authors should comment on the range of RCP scenarios 2) The statement warns of "tipping points" but then as examples gives a list of generic impacts, with the only "tipping point" specific being that they exceed coping mechanisms. Many of those impacts currently exceed coping mechanisms, so the nature of the tipping point is not clear. 3) The authors specify "seasonal" uninhabitability, but sea level rise in an unmitigated climate world is predicted to render large land areas permanently uninhabitable. (UNITED STATES OF AMERICA)
144	11	4	3	4	4	Temperature units missing. (Burt, Peter, University of Greenwich)
145	11	4	4	4	4	Usage of "tipping points" should be carefully considered here. In what sense are these tipping points as compared to substantial impacts? The latter option seems more appropriate perhaps. Additionally, the examples given on lines 5-7 do not seem to be tipping points. (Mach, Katharine, IPCC WGII TSU)
146	11	4	4	4	5	The sentence describing the possible exceeding of tipping points, whilst very relevant to the argument being discussed is out of context and confusing... (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
147	11	4	4	4	7	Section 11.8 does not clearly support this linking of projected temperatures under RCP8.5 with all of these impacts. For example, it only presents annual average temperatures, while the impacts described relate to seasonal or shorter-term temperatures. It would be more effective, in my opinion, to clearly present here what is known about health impacts and limits to adaptation at higher levels of warming, based on the available literature. The somewhat loose connection to RCP 8.5 distracts from this message. Also, in terms of the logic here, sea level rise, storms, etc. are not tipping points for health impacts themselves. (Mastrandrea, Michael, IPCC WGII TSU)
148	11	4	5	4	5	“storms”should be replaced by “extreme events”. (Zheng, Dawei, China Agricultural University)

#	Ch	From Page	From Line	To Page	To Line	Comment
149	11	4	5	4	5	The word of 'Storms' is too specific, it is suggested to change "Storms' as 'extreme events'. (Xu, Yinlong, Institute of Environment and Sustainable Development in Agriculture (IEDA), Chinese Academy of Agricultural Sciences (CAAS))
150	11	4	6	0	0	please replace "daily temperature / humidity" by "thermal" (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
151	11	4	6	4	7	Is uninhabitable the right word here? It seems that what is meant is unsuitable. (Mastrandrea, Michael, IPCC WGII TSU)
152	11	4	7	0	0	Cut "seasonally". An area that becomes "seasonally uninhabitable" in most cases in fact becomes "uninhabitable" because "seasonable uninhabitable" implies that the population can move in and out according to the season. This is - in most cases - completely unrealistic. (Zacher, Winfried, Germanwatch)
153	11	4	7	4	7	The part of this finding regarding human activity should be coordinated with similar findings in chapter 19 and also the 4°C material within the summary products. (Mach, Katharine, IPCC WGII TSU)
154	11	4	10	4	19	Health co-benefits of promoting biking or walking in urban areas over personal vehicle use are also pretty clear and substantial in the literature. (UNITED STATES OF AMERICA)
155	11	4	12	4	12	The sentence would be more understandable if the end read 'that will also return health co-benefits include:' (Lewis, Nancy Davis, East-West Center)
156	11	4	14	4	16	This is a second-best argument. Reducing air pollution etc is best done by reducing air pollution, rather than reducing greenhouse gas emissions. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
157	11	4	17	4	19	There is no reason to assume that slower population growth implies slower emissions growth. There is no support in your chapter anyway. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
158	11	4	17	4	19	This Malthusian view of health has never been verified: there is no correlation between health and the volume of population per se. What matters, historically and universally, is first and foremost the degree of economical and technological development. (Godefridi, Drieu, Cogito)
159	11	4	17	4	19	the bullet point on access to reproductive health services seems to have a slightly different logic: reproductive health services are primarily intended to benefit health - and reduction of CAP emission can be seen as a co-benefit; maybe the use of the term co-benefit requires clearer definition? (Matthies, Eva Franziska, Consultant)
160	11	4	17	4	19	see general comments 2) (ITALY)
161	11	4	18	4	18	Is the reference here to CAP emissions reduction sufficiently qualified in terms of the importance of population versus technologies and other factors in determining these emissions? (Mach, Katharine, IPCC WGII TSU)
162	11	4	25	4	25	Please add a definition of Climate Altering Pollutants (with a reference). (UNITED STATES OF AMERICA)
163	11	4	29	0	0	after interventions,'other than health sectors' may be added. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
164	11	4	29	4	29	Given usage elsewhere in the report, it would be clearest to say here "health co-benefits" since the term "co-benefits" is used more broadly elsewhere. (Mach, Katharine, IPCC WGII TSU)
165	11	4	31	4	31	IPCC should be written in full for the first time in the chapter (NETHERLANDS)
166	11	4	31	4	32	This statement is incorrect. The chapter team is required to complete a comprehensive assessment of the literature. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
167	11	4	31	4	32	The IPCC procedures state that "...chapter teams are required to consider the range of scientific, technical and socio-economic views, expressed in balanced assessments." Do the authors have something else in mind when they say "comprehensive, systematic review"? Perhaps the authors are referring to their focus on literature since the publication of AR4. As I mention in later comments, the framing of that focus is somewhat problematic, as it implies that the authors ignore anything published before 2006. The assessment in this chapter should be building from the AR4 assessment of literature--no publications on a topic since 2006 should not be equated with nothing being known about the topic. The state of knowledge should still be presented. (Mastrandrea, Michael, IPCC WGII TSU)
168	11	4	31	4	34	I already refered to the isue of the need for a systematic review in my general comments. More specifically, the process followed by the authors in the selection of the literature is clearly not transparent. Their method is not described at all. They claim to have followed the methodology of Hosking and Campbell-Lendrum, Environ. Health Perspect, 120, 1076-1082, 2012. Unfortunately, their description of the way they selected the references is extremely short and non informative. Hosking and Campbell provide in their paper a clear way how they did their selection and assessment and state that this is the methodology for a scoping review. Therefore, if the authors followed the Hosking and Campbell methodology they should precisely describe the process e.g. databases they checked, inclusion, exclusion criteria etc. as Hosking and Campbell. Currently this is not the case in this chapter and this a major weakness of the chapter. Scoping reviews are supposed to focus on the identification of research gaps. If so, the authors should state after each subchapter the research gaps they identified for each of the issues, e.g. need for more and long term quantitative studies. This is not the case now and thus the way it is presented doesn't fulfill not even the requirments of a scoping review. It is questionable that the chapter would stand a rigorous review process in a scientific journal. (Stilianakis, Nikolaos, European Commission)
169	11	4	40	6	5	While the present state of global health is an important context, too much page space is given to this and discussion of the MDG. Suggest leaving some discussion of MDG, tightening discussion of present state of global health and tying it more closely to climate or deleting it. (UNITED STATES OF AMERICA)
170	11	4	42	4	43	It is correctly stated that life expectancy has improved. However in many countries, together with longer lives, come longer periods living with chronic diseases. In their report, “Healthy life expectancy for 187 countries, 1990—2010: a systematic analysis for the Global Burden Disease Study 2010”, by Solomon et al (The Lancet, Volume 380, Issue 9859, Pages 2144 - 2162, 15 December 2012), it states “as life expectancy has increased, the number of healthy years lost to disability has also increased in most countries”. This could be interpreted as having a larger fraction of the population which are vulnerable (to climate change and other environmental risk factors). This is not stated or made clear in this section of the report. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
171	11	4	42	4	52	Is it possible to provide any specific statistics for these described trends? (Mach, Katharine, IPCC WGII TSU)
172	11	4	43	4	43	Capital 'C' required for 'century' (in this context it is a proper noun and is also in keeping with other usage in the document). (Burt, Peter, University of Greenwich)
173	11	4	43	4	45	Statistics or some type of quantification would strenthgen this assertion. Either life expectancy statistics at the grobal level and then control for China. (NETHERLANDS)
174	11	4	46	0	0	instead of 'according to' 'in terms of' may be added. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
175	11	4	48	4	48	I don’t know what 'convergence' means here, please explain. (Burt, Peter, University of Greenwich)
176	11	5	7	5	7	The rigor of this statement should be carefully considered. To what degree does the literature directly support a significant effect of climate change in the next few years for the goals? (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
177	11	5	9	5	32	Figure 11-1 discussed here makes interpretation difficult for various reasons. Firstly, the MDG refers to under 5 mortality rate, which is deaths per 1000 live births. The graph shows overall mortality, by cause. Moreover, the MDGs measure progress from 1990 to 2015. The figure begins in 2008 and extrapolates to 2030. Although it shows a curve as MDG target, it does not describe the large inequalities that exist in countries, where the target may be met but still leaving large populations below the target level. In addition, the graph shows that in 2011 there were around 8.3 million deaths, however, the UN says that there were 6.9 million deaths in that year (http://www.un.org/millenniumgoals/childhealth.shtml). According to the figure, this reduced number of deaths would not occur until after 2017. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
178	11	5	11	5	12	It is not clear from the figure what MDG goal would be in 2025. MDG goal is a reduction of the mortality rate, but the figure shows the absolute mortality, not the mortality rate. (UNITED STATES OF AMERICA)
179	11	5	12	0	0	The word 'even' may be shifted after the word 'reached' (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
180	11	5	12	5	13	Please provide a specific reference to WGI, e.g. WGI Ch9. (Plattner, Gian-Kasper, IPCC WGI TSU)
181	11	5	15	5	17	The issue on diarrheal disease is that climate change impacts are mediated by the extent to which water, sanitation and hygiene (including food hygiene) are improved and the extent to which these improvements can be made resilient to climate change so I think the language in this bullet needs to reflect this is an indirect influence on health outcomes (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
182	11	5	15	5	22	The chapter team could consider assigning calibrated uncertainty language to indicate its degree of certainty in these outcomes. (Mach, Katharine, IPCC WGII TSU)
183	11	5	15	5	22	These statements appear to be findings of the chapter, but are not assigned calibrated uncertainty language. They should be, even if not included in the executive summary. (Mastrandrea, Michael, IPCC WGII TSU)
184	11	5	19	5	19	It would be preferable to specify more precisely what is meant by "more difficult to control." (Mach, Katharine, IPCC WGII TSU)
185	11	5	20	0	0	the word ' improving' should be replaced by 'reduction in use of ' (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
186	11	5	20	5	20	We believe that "improving" combustion implies continued use of solid fuels, which is likely to provide limited health and climate benefits, even with improved efficiency. Perhaps this could be changed to "improving or eliminating/reducing"? (UNITED STATES OF AMERICA)
187	11	5	20	5	20	The phrase "on a more positive note" suggests a level of editorializing that may be best to avoid. (Mach, Katharine, IPCC WGII TSU)
188	11	5	20	5	22	Not just improving combustion of solid fuels, as stated, but we must consider the availability and provisioning of affordable cleaner fuels as well (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
189	11	5	20	5	23	Improving combustion of solid fuels: is this primarily a health or a mitigation measure? If the co-benefit relates to the reduction of CAPs, then the use of the term co-benefit does not correspond to its defintion on page 4, line 29. (Matthies, Eva Franziska, Consultant)
190	11	5	36	5	38	HALE has improved, but not at the pace of life expectancy (see comment above). In fact the authors cited also state that “HALE increased more slowly than did life expectancy over the past 20 years” (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
191	11	5	36	5	49	Please delete, not relevant to climate change impacts discussion important points should instead be included in section 11.3.2. The space could be better used to address missing topics such as Harmful Algal Blooms, zoonoses, integrated public health surveillance and climate observation data. (UNITED STATES OF AMERICA)
192	11	5	36	6	5	The information presented is not related to global health, and not climate change related. (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
193	11	5	37	5	37	Where substantial improvement is noted here, it would be helpful to specify the timeframe over which improvement has been observed. (Mach, Katharine, IPCC WGII TSU)
194	11	5	38	5	39	Text needs editing. I presume the full stop at the end of line 38 is an error. Full stop required after '2011a)'. (Burt, Peter, University of Greenwich)
195	11	5	39	5	39	After the reference (World Health Organization, 2011a), there must necessarily be a space (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
196	11	5	44	5	45	“The dramatic decline in CVD in high income countries”. It needs a definition of “dramatic” and also a time period. According to the CRA which the authors use, take the example of Ischemic Heart Disease (IHD). For developed countries, DALYs´went down from 12.63% of the total in 1990 to 11.58%, and important although small reduction. Deaths declined similarly from 25.97% in 1990 to 23.37 in 2010. Perhaps “dramatic” is the increase in countries like China, although the fractions continue to be significantly smaller than those of developed countries. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
197	11	5	44	5	45	Is there really a "dramatic decline in cardiovascular disease in high-income countries" or could it be that it should read "decline in cardiovascular disease mortality"? (GERMANY)
198	11	5	46	0	0	For two reasons'. This is a strong statement. There may be other reasons too. Please rephrase. (Stilianakis, Nikolaos, European Commission)
199	11	5	47	5	49	This sentence implies that the increase in reporting of these diseases and disorders reflects increased incidence/prevalence. However, for many (and possibly all) this may in fact be simply related to changes in reporting (this is particularly the case for mental health problems such as depression). I think this sentence needs to make clearer that there multiple reasons why this increase is found. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
200	11	5	51	5	53	How does this reconcile with the evidence that an aging population will put more pressure on the health care system? (sassi, fabrizio, Naval Research Laboratory)
201	11	6	6	6	7	Unlike in AR4, there lacks a short summary of main findings from the previous AR before starting with further developments (GERMANY)
202	11	6	8	6	20	Major advance since AR4. Since AR4 there has been an increasing focus on the importance of underlying climate data and services in informing climate change adaptation in the health sector and an Increased interaction between climate and health community (e.g. Global Framework for Climate Services) including partnerships which enable observational data sharing. Global Framework for Climate Services. http://www.wmo.int/hlt-gfcs/downloads/HLT_book_full.pdf In particular the long running debate on evidence for warming in Eastern Africa in relation to malaria transmission has been resolved (at least at the level of whether or not there is evidence of warming over the last 3 decades see comments relating to section xxx. General challenges surrounding data issues are set out in: Thomson, M.C. Connor, S.J., Zebiak, S.E. Jancloes, M., and Mihretie, A (2011) Africa needs climate data to fight disease. Nature, 471 440-442 (24th March 2011) Methodological approaches which overcome some of the challenge of accessing quality assured historical and current data have been addressed in part in Ethiopia through the development of Enhanced National Climate Services (ENACTS) products. Dinku, T., K. Hilemariam, D. Grimes, A. Kidane and S. Connor (2011). "Improving availability, access and use of climate information " World Meteorological Bulletin 60(2) (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
203	11	6	8	7	11	Section 11.1.2: This section can be expanded to highlight a vast amount of literature on extreme heat, air pollution and human mortality and morbidity. The examples of ocean acidification and occupational health are OK, but they are not necessarily the most representative of the recent advancements in climate and health connections, as shown in recent literature. Below are just two examples of the references that could be cited: Bouchama et al. 2007 Prognostic Factors in Heat Wave Related Deaths: A Meta-analysis. ARCH INTERN MED/VOL 167 (NO. 20). Gosling, S. N., Lowe, J. A., McGregor, G. R., Pelling, M., Malamud, B. D., 2009. Associations between Elevated Atmospheric Temperature and Human Mortality: A Critical Review of the Literature. Climatic Change 92, 299{341. King, B., Crews, K. (Eds.), Ecologies and Politics of Health. Routledge Press. (UNITED STATES OF AMERICA)
204	11	6	10	4	20	The International Journal of Biometeorology should be listed as important source of publications reported health problems. There is also the review book "Biometeorology for adaptation to climate variability and change" (eds. K. Ebi, i. Burton, G.McGregor, Springer, 2009, serie Biometeorology 1). (POLAND)
205	11	6	10	6	20	A protocol published by one of the authors is used to search for citations. Other methods could have been used to ensure transparency. Justifications for a low number of publications linking climate change and health are not substantiated and inacurate. (NETHERLANDS)
206	11	6	12	6	13	per annum' should be in italics. (Burt, Peter, University of Greenwich)
207	11	6	17	6	18	were quantitative studies (Lewis, Nancy Davis, East-West Center)
208	11	6	36	6	36	Please define 'Oceania' as it can be defined in different ways (AUSTRALIA)
209	11	6	40	6	52	There is inadequate space devoted to the study of weather an meteorogical effects on health. The paragraph starts by mentioning the study of long-term effects, for which, indeed, there are few studies, and then provides data and a figure for short-term effects, without making that as clear as it could be. The figure shown is from Bourkina Faso, whilst there also analogous results published from Europe and the U.S. , which report similar patterns. Specifically the paper by Baccini M, Biggeri A, Accetta G, Kosatsky T, Katsouyanni K, Analitis A, Anderson HR, Bisanti L, D' Ippoliti D, Danova J, Forsberg B, Medina S, Paldy A, Rabczenco D, Schindler C and Michelozzi P. Heat effects on mortality in 15 European cities. Epidemiology 2008; 19: 711-719 (which also got the Keneth Rothman Epidemiology Prize 2009), has the effects from Europe, whilst Curriero F, Heiner KS, Samet JM, Zeger SL, Strug L, Patz JA. Temperature and mortality in 11 cities of the eastern United States, Am J Epidemiol, 2002; 155: 80-7, shows similar patterns in Eastren US. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
210	11	6	44	0	0	this essentially says that the elderly are dying more (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
211	11	6	45	6	45	Should explain that Burkina Faso is a country in West Africa. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
212	11	6	45	6	46	Figure 11-2: This figure is incomprehensible to non-experts and the caption does not seem to help. The text offers no further explanation. Caption must explain further so that audience can easily find evidence to support the statement, “the relative risk of dying for the elderly above 60 years is associated with the temperature on the day preceding the death.” What is meant by “relative risk” given the log scale plotted? That is, what is exactly relative risk to? Tic marks on the x-axis are completely unreadable and don’t make sense. X-axis title is not clear. (Estrada, Yuka, IPCC WGII TSU)
213	11	6	50	0	0	Figure 11.2 information on x axis can be confusing. (Chatterjee, Monalisa, IPCC WGII TSU)
214	11	7	4	7	4	Should "negatives" be acknowledged here in addition to positive "co-benefits"? (Mach, Katharine, IPCC WGII TSU)
215	11	7	4	7	5	"responses to climate change may affect health, so-called "co-benefits" - could it be inserted: ... Affect health positively ....to differntiate from possible harms? (Matthies, Eva Franziska, Consultant)

#	Ch	From Page	From Line	To Page	To Line	Comment
216	11	7	5	7	5	Insert 'gas' after 'greenhouse'. (Burt, Peter, University of Greenwich)
217	11	7	6	7	6	are the authors suggesting ocean acidification affects human health? (Lewis, Nancy Davis, East-West Center)
218	11	7	6	7	6	The reference to ocean acidification seems a bit out of scope for the chapter. (Mach, Katharine, IPCC WGII TSU)
219	11	7	6	7	6	The relevance of ocean acidification as an example here is unclear--there are other examples that would be more directly relevant to health, like black carbon mentioned below. For clarity, I would suggest a different example. (Mastrandrea, Michael, IPCC WGII TSU)
220	11	7	10	7	11	Care should be taken in asserting causal effects of climate change on conflict. Robust referencing should be provided, along with careful coordination with the findings of chapters 12 and 19. (Mach, Katharine, IPCC WGII TSU)
221	11	7	14	0	0	Section 11.1.3: the authors could elaborate a bit more on climate-altering pollutants, which are only identified without further attempt to define/describe them in a more detailed manner. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
222	11	7	14	0	0	Section 11.1.3. It would be preferable to focus the section on climate-altering pollutants more exclusively, instead of ocean acidification. Robust referencing is required. (Mach, Katharine, IPCC WGII TSU)
223	11	7	14	7	22	Section 11.1.3 can be expanded to highlight research on air quality and health. For example, Jerret et al. (2009) paper could be cited here. (UNITED STATES OF AMERICA)
224	11	7	16	7	22	Are there any references for these statement? (sassi, fabrizio, Naval Research Laboratory)
225	11	7	19	7	19	I suspect that in many circumstances there are mulitiple other factors affecting coral fish populations in costal areas which in turn potentially impact nutrition (Lewis, Nancy Davis, East-West Center)
226	11	7	25	7	25	The title "11.2 How Climate Affects Health". This Chapter 11 describe the climate change's impacts on human health instead of climate. It could be titiled "How Climate variability and Change Affects Health". Climate Change covers the aspect of extreme weather and climate events (heat wave, cold wave), air quality, UV, so on. (Tan, Jianguo, Shanghai Meteorological Institute)
227	11	7	25	7	49	The organization of paragraph is confusing and potentially misleading. Initially states that "There are three basic pathways by which climate change affects health" and that the entire chapter is organized on these lines. Line 45 then refers to "lower probability extreme climate regimes beyond 2050" in such a way as to suggest it is a fourth basic pathway in the same organizational structure. The examples given, however, include all of the three pathways, direct (heat), indirect (infectious diseases), and human systems (nutrition/crop failure). (UNITED STATES OF AMERICA)
228	11	7	27	7	34	This section describes health IMPACTS as: “Direct impacts”, “Effects mediated though natural systems” and “Effects heavily mediated by human systems”, and makes reference to figure 11.3. There is a somewhat confusing association with the figure which has “Environmental conditions”, “Social conditions”, and “Health system conditions” which are not explained in the text. It also shows a pathway of effect through EXPOSURES: “Direct exposure”, “Indirect exposure” and “Social and economic” . The figure is identical to Fig 8.1 in AR4 only drawn differently and attributed to a different author. The authors should consider designing their own figure based their proposed set of “impacts”. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
229	11	7	29	7	29	cold weather also is part of the direct impacts (sassi, fabrizio, Naval Research Laboratory)
230	11	7	29	7	30	Direct imapcts can involve the radiation. It could be "Direct impacts, which related primarily to heat, weather extremes, floods, and UV etc. that directly impact human health and safety. (Tan, Jianguo, Shanghai Meteorological Institute)
231	11	7	29	7	38	The chapter team should consider changing the boxes within figure 11-3 so that they match more closely the categories provided on lines 29-34. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
232	11	7	33	7	33	Section 11.2, Line 33: "refugees" does not seem to fit in the list of health outcomes and impacts examples. Are there particular health impacts associated with population displacement? This may be more relevant to the Ch 19 discussion and the authors should consider addressing this there (which is much more speculative about future risks). (UNITED STATES OF AMERICA)
233	11	7	33	7	34	Urbanization must be added to the list (POLAND)
234	11	7	36	7	38	Figure 11-3. This figure is not clear in explaining climate change effects on health. The "condition" boxes are not related and although footnote 2 refres to arrows within condition boxes, I cannot see them. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
235	11	7	40	7	43	include also efforts to improve environmental quality and land use management (ITALY)
236	11	7	41	0	0	In addition to disaster management, I suggest including "disaster risk management" - specifically focused on the development of early warning systems for health that can trigger early action. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
237	11	7	45	7	45	This is rather strong statement, especially given the uncertainty in projections of extreme events for mid-century and end of century. The info about uncertainty is also stated on page 12, lines 18-20). (UNITED STATES OF AMERICA)
238	11	7	45	7	46	This statement is not clear to me (NETHERLANDS)
239	11	7	45	7	46	This statement should be carefully clarified and qualified as appropriate. Overgeneralization should be avoided, and it should be clarified what is meant by "climate regimes" and "reasonable adaptation options." (Mach, Katharine, IPCC WGII TSU)
240	11	7	45	7	46	The judgment underlying labeling these "lower probability" is not clear--I think it would be more logical to separate what you are saying about impacts of larger magnitudes of climate change from how likely they are to occur--the consequences are your focus in this chapter. Further, the judgment underlying "no reasonable adaptation options" is also unclear--reasonable to whom? What you seem to be talking about are limits to adaptation that could be hit if climate change exceeds certain levels. Again, what is know about these levels and limits should be the focus here. Consider a framing along the lines of "impacts of large magnitude climate change that may exceed limits to adaptation." (Mastrandrea, Michael, IPCC WGII TSU)
241	11	8	0	11	0	all para 11.3 - exposure to climate-related enviornmental hazard as part of vulnerabilitiy assessment is missing (ITALY)
242	11	8	1	0	0	Authors should coordinate with other chapters like 13, 9 and 8. (Chatterjee, Monalisa, IPCC WGII TSU)
243	11	8	1	0	0	Section 11.3: The terms "risk" and "vulnerability" are both used in this section, sometimes in ways that do not appear to be fully distinct. Please consider the glossary definitions for both terms and usage consistent with those definitions. (Mastrandrea, Michael, IPCC WGII TSU)
244	11	8	1	10	52	The vulnerability section is important but should be tightened with similar space given to each subtopic and section 11.3.5 expanded (UNITED STATES OF AMERICA)
245	11	8	1	11	9	Honestly, subchapters 11.3.1 to 11.3.5 seem rather generic and the chapter could do without them. Only 11.3.6 states a new and interesting aspect: the role of population growth. I miss a notion on intranational (health) inequalities and alternative indices and approaches to measure wellbeeing. The paradigm of development and growth seem outdated, isn't it? The Uejio refs (along with many other recent and forthcoming papers on the topic of heat vulnerabilty assessment) would better suit in 11.4.1 (Wolf, Tanja, WHO Regional Office for Europe)

#	Ch	From Page	From Line	To Page	To Line	Comment
246	11	8	1	26	53	In the sequence of sections the authors have 11.3 "Vulnerability" first, followed by the "Direct" (section 11.4) and "Indirect" (sections 11.5, 11.6). I suggest that these should be reversed: The direct and indirect effects should go first and vulnerability should follow. The suggested format is more logical, since the reader should know the effects to which an individual or a group may be vulnerable to. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
247	11	8	3	8	4	A reference to the report glossary should be provided here in addition to the reference to Chapter 19. (Mach, Katharine, IPCC WGII TSU)
248	11	8	3	8	32	There also evidence that vulnerability is modified across geographic regions which may show how populations adapt to their environmental conditions. Thus heat affects a population at lower levels of temperature if the average climate is cooler whilst it affects population in warmer areas from higher levels. The references mentioned above give evidence for a North to South gradient. This should be mentioned in paragraph 11.3 (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
249	11	8	8	8	10	This is an important statement which needs to be substantiated. One can think of populations which do not have a high background of climate related disease, but may be highly vulnerable to heatwaves (eg Europe 2003), or hurricanes, sea level rise, floods etc. Poverty may also be a very good indicator of vulnerability, at least to some climate health impacts. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
250	11	8	8	8	10	The logic of this statement could be considered. Is risk equivalent to vulnerability, what references support the statement, etc.? (Mach, Katharine, IPCC WGII TSU)
251	11	8	8	8	10	I do not completely understand this statement--is the implication that climate change would be expected to have a proportional impact (e.g., doubling) everywhere? What is this view based on? Please clarify the logic and support. (Mastrandrea, Michael, IPCC WGII TSU)
252	11	8	8	43	43	The phrase "water-related diseases in future drought" is unclear. (UNITED STATES OF AMERICA)
253	11	8	12	8	25	The section is missing important information that vulnerability can be differentiated not only between urban and rural but also among different neighborhoods and populations at a relatively fine scale. The following papers discuss and demonstrate this point: Harlan, S. L., Declet-Barreto, J. H., Stefanov, W. L., Petitti, D. B., 2013. Neighborhood Effects on Heat Deaths: Social and Environmental Predictors of Vulnerability in Maricopa County, Arizona. Environmental Health Perspectives DOI: 10.1289/ehp.1104625.Uejio, C.K., Wilhelmi, O.V., Golden, J.S., Mills, D.M., Gulino, S.P., and Samenow, J.P. 2011. Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability. Health & Place, 17(2): 498‰ÛÒ507. Wilhelmi, O. V., Hayden, M. H., 2010. Connecting People and Place: A New Framework for Reducing Urban Vulnerability to Extreme Heat. Environmental Research Letters 5 (1), 014021. (UNITED STATES OF AMERICA)
254	11	8	13	8	14	mind the wording : are education, income,... causes of vulnerability? Better: There are some factors (level of education, income…) that generally determine vulnerabilty. (Wolf, Tanja, WHO Regional Office for Europe)
255	11	8	16	8	16	mind the wording: military conflict is not a natural disaster, just delete the "other" before natural disaster. (Wolf, Tanja, WHO Regional Office for Europe)
256	11	8	17	8	17	'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
257	11	8	20	0	0	It is hard to not have psychological distress faced with severe drought if you are living in a remote and rural area and livelihoods depended on it. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)

#	Ch	From Page	From Line	To Page	To Line	Comment
258	11	8	20	0	0	Please add other references: 1. Hayden MH, Brenkert-Smith H.,Wilhelmi O. (2011) Differential adaptive capacity to extreme heat: A Phoenix, AZ. case study. Weather, Climate and Society 3(4): 269-280. 2. Sharon L. Harlan, Juan H. Declet-Barreto, William L. Stefanov, and Diana B. Petitti. Neighborhood Effects on Heat Deaths: Social and Environmental Predictors of Vulnerability in Maricopa County, Arizona. Environ Health Perspect 121:197"Ò204 (2013)."âhttp://dx.doi.org/10.1289/ehp.1104625 [Online 16 November 2012]"© 3. de Sherbinin, A., Wilhelmi, O and Hayden, M. (2012) Exposure to Heat Stress in Urban Environments: Current Status and Future Prospects in a Changing Climate. In: Ecologies and Politics of Health, edited by Brian King and Kelley Crews, Routledge Press (in press) (UNITED STATES OF AMERICA)
259	11	8	27	8	27	It would be beneficial to refer to developed regions here as well, as the same statement seems applicable to them--but again in different ways. (Mach, Katharine, IPCC WGII TSU)
260	11	8	30	8	30	The linkages between climate change and climate stress on the one hand and infrastructure and high dependence on natural infrastructure on the other needs to be explained in more detail. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
261	11	8	32	8	32	Insert 'the populaiton' after 'all'. (Burt, Peter, University of Greenwich)
262	11	8	35	0	0	It is confusing whether or not the accessibility and quality of the local health system is covered in this section of "Geographic Causes of Vulnerability" or later on under "Public Health and Other Infrastructure". Perhaps that deserves its own section, because improving the quality of health services is a key adaptation goal. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
263	11	8	35	8	51	It may be an important omission not to mention urban centres and the rapid and often unplanned urbanization which is occurring in many developing countries. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
264	11	8	37	8	37	"...for losses"? what kind of losses? Human life or economic losses or both? (UNITED STATES OF AMERICA)
265	11	8	37	8	47	The paragraph sounds trivial. After 4 communications saying that low lands or coastal areas are at higher risk of flooding, areas with temperatures close to the tolerable limit at higher risk of heat effects, etc, sounds trivial. Undoubtedly many work has been allocated to these subjects (there is plenty of citations). Please do not misunderstand my point, I am not criticizing it. I just want to minimize the possibilities of being accused of "proving the obvious". (Carbajo, Anibal Eduardo, Universidad Nacional de San Martín)
266	11	8	37	8	51	Section 11.3.1: This section is missing an important component of geographic causes of vulnerability: urban vulnerability. Extreme heat, for example, is amplified by urban heat island (UHI) effect in large cities, which increases exposure of urban population to heat. And geography, as well as urban morphology affect the UHI. There have been a number of studies and review papers on this topic. Examples are: Uejio, C.K., Wilhelmi, O.V., Golden, J.S., Mills, D.M., Gulino, S.P., and Samenow, J.P. 2011. Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability. Health & Place, 17(2): 498‰ÛÒ507. Wilhelmi, O., de Sherbinin, A., Hayden, M., 2012. Exposure to Heat Stress in Urban Environments: Current Status and Future Prospects in a Changing Climate. In: King, B., Crews, K. (Eds.), Ecologies and Politics of Health. Routledge Press. (UNITED STATES OF AMERICA)
267	11	8	38	8	40	It is unclear why those living in low-to-mid latitudes will be most affected, and this statement is NOT supported by Kjellstrom et al. 2013. Those at low latitudes are generally less affected by heat-related illness than those at higher latitudes (ie. far more people die of heat in Toronto than Phoenix). As a minor side note, the Kjellstrom et al. 2013 reference has a typo at the end of the chapter. (UNITED STATES OF AMERICA)
268	11	8	40	8	40	exquisitely? (Lewis, Nancy Davis, East-West Center)

#	Ch	From Page	From Line	To Page	To Line	Comment
269	11	8	40	8	42	These impacts (inundation and soil and water salination of low lying islands) are also worth highlighting in the ES as occuring now. (UNITED STATES OF AMERICA)
270	11	8	43	8	43	Please clarify 'water-related diseases' in the context of drought. Is it 'water scarcity related diseases? (AUSTRALIA)
271	11	8	44	8	44	In water stressed and semi-arid or arid areas even access to irrigation will not improve food security substantially unless this is accompanied by water management/conservation techniques and irrigation technology that minimises waste and maximises effective use of available resources. In some areas, eventually, even all of that will not be enough if the worst climate scenarios will be realised. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
272	11	8	48	8	49	The sentence starting with "Living in rural and remote areas.." is irrelevant to the context of that paragraph and section. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
273	11	8	49	8	49	Move full stop from before the bracket to after. (Burt, Peter, University of Greenwich)
274	11	8	51	0	0	Please add the following reference: Lozano-Fuentes S, Hayden MH, Welsh-Rodriguez C, Ochoa-Martinez C, Tapia-Santos B, Kobylinski KC, Uejio CK, Zielinski-Gutierrez E, Delle Monache L, Monaghan AJ, Steinhoff DF, and Lars Eisen. (2012) The Dengue Virus Mosquito Vector Aedes aegypti at High Elevation in MÌ©xico. American Journal of Tropical Medicine and Hygiene doi: 10.4269/ajtmh.2012.12-0244 (UNITED STATES OF AMERICA)
275	11	9	3	9	13	In this section (11.3.2) factors like obesity & overweight affecting response to heat should be mentioned as well. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
276	11	9	3	9	13	When stating the current health status focus is only given to infectious diseases. Non-communicable disease should also have been addressed as they also contribute to disease and injury influencing the current heath status. (NETHERLANDS)
277	11	9	3	9	13	Most of the examples of current health status involve infectious diseases and the lack of climate-related amplicfication of infectious diseases when the disease agents are not present in the population. This is an odd and in many ways self-evident set of examples, and ignores the importance of underlying nutritional status, chronic diseases like COPD, diabetes, heart disease (all of which increase risk of exacerbation from heat stress). Suggest rewriting this section with more balanced discussion of different aspects of current health status, to include nutrition/stunting/diarrheal diseases, and chronic adult diseases in addition to some examples of infectious disease. (UNITED STATES OF AMERICA)
278	11	9	5	0	0	Section 11.3.2: encephalitides is not correct, the correct is encephalitis. (Saad-Hussein, Amal, National Research Center)
279	11	9	10	9	13	Impacts of drought on HIV could use a reference. (UNITED STATES OF AMERICA)
280	11	9	10	9	13	Please provide citations that support these statements. (Mastrandrea, Michael, IPCC WGII TSU)
281	11	9	12	9	13	How can prolonged drought lead to increased exposure to unsafe sex?, and where are the references for the set of relationships outlined in this sentence? (AUSTRALIA)
282	11	9	12	9	13	The purported causal chain linking drought to unsafe sex is unclear. In general, Section 11.3.2 could use some revision for cohesion and clarity. (UNITED STATES OF AMERICA)
283	11	9	12	9	13	Link between climate driven migration and increased exposure to unsafe sex is not clear and is not backed by any evidence. This should be removed unless robust evidence to support this claim is included and the actual link is explained clearly. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
284	11	9	26	9	26	Incorrect usage: delete 'the' and change 'plasmodium' to 'Plasmodium' with the latter in italics. (Burt, Peter, University of Greenwich)
285	11	9	27	9	28	Please provide citation to support the statement about children's dehydration (UNITED STATES OF AMERICA)
286	11	9	28	9	29	The presence of maternal antibodies in infants may contribute to enhanced risk for DHF(depending on titer) due to antibody dependent enhancement, in addition to being protective. Suggest providing references and qualifying. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
287	11	9	29	9	30	Please provide citation about children and impact of dengue (UNITED STATES OF AMERICA)
288	11	9	31	9	31	I would add: On chronic diseases, some 235 million people currently suffer from asthma, which is the most common chronic disease among children (WHO, 2011). (WHO [World Health Organisation]. 2011. Asthma- Facts sheet N307. [On line] <http://www.who.int/mediacentre/factsheets/fs307/en/index.html> (Consulted May 2013) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)
289	11	9	32	9	33	References? (AUSTRALIA)
290	11	9	32	9	33	A citation would be important to add here. (UNITED STATES OF AMERICA)
291	11	9	32	9	33	Is there a reference for this statement? Is this true world-wide and all socioeconomic groups or just a subset (ie more a genetic cause or an environmental cause that might be increasingly impacted by climate change?). (UNITED STATES OF AMERICA)
292	11	9	32	9	33	It is inaccurate to state that mental illness peaks in youth. The statement should reflect that onset of mental illness is typically in adolescence or young adulthood. (UNITED STATES OF AMERICA)
293	11	9	32	9	33	Please provide citation to support the statement about mental health and children (UNITED STATES OF AMERICA)
294	11	9	32	9	33	Can the authors substantiate and explain this comment? It is not clear why young people are more susceptible to climate induced mental ill-health - nor indeed what conditions are being referred to here. Nor was I aware that there is definitive evidence that mental illness overall peaks in youth. Can the authors provide references to support these claims and be clear on which conditions are being considered and any geographical bias in the evidence (which I suspect is very significant). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
295	11	9	33	0	0	Ref for statement is missing (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
296	11	9	35	9	37	References? (AUSTRALIA)
297	11	9	35	9	37	The mortality study on cause of death from Hurricane Katrina found that 50% of victims were aged 75 and older. Consider including reference here (Brunkard et al., 2008) Brunkard J, Namulanda G, Ratard R. Hurricane Katrina deaths, Louisiana, 2005. Disaster Med Public Health Prep. 2008 Dec;2(4):215-23. doi: (UNITED STATES OF AMERICA)
298	11	9	35	9	41	Section 11.3.3. Age and Gender: A more recent citation (and a useful review article) is available that focuses on the impacts of climate change on older adults, see: Gamble, J.L., B.J. Hurley, P.A. Schultz, W.S. Jaglom, N. Krishnan, and M. Harris, January 2013. Climate Change and Older Americans: State of the Science. Environmental Health Perspectives, 121(1): 15-22. (UNITED STATES OF AMERICA)
299	11	9	35	9	41	We suggest adding a sentence about thermoregulation in older adults (UNITED STATES OF AMERICA)
300	11	9	35	9	41	Apart from being less mobile and apart from suffering from health conditions that limit their ability to adjust, some changes occur with age such as changes in thermoregulation, renal function, reduced water intake, this add to rendering the elderly and very elderly more vulnerable to heat exposure; References: Flynn A, McGreevy C, Mulkerrin EC (2005). Why do older patients die in a heatwave? Commentary. Quarterly Journal of Medicine, 98:227–229; Kovats RS, Hajat S. (2008). Heat stress and public health: a critical review. Annual Review of Public Health, 29(9):1–9,15; Schifano P, Cappai G, De Sario M, Michelozzi P, Marino C, Bargagli AM, Perucci CA. Susceptibility to heat wave-related mortality: a follow-up study of a cohort of elderly in Rome. Environmental Health 2009, 8, 50; Kenny GP et al. (2010). Heat stress in older individuals and patients with common chronic diseases. Canadian Medical Association Journal, 182:1053–1060 doi:10.1503/cmaj.081050). (Matthies, Eva Franziska, Consultant)

#	Ch	From Page	From Line	To Page	To Line	Comment
301	11	9	35	9	41	The results of PHEWE project, e.g. Baccini M., Biggeri A., Accetta G., Kosatsky T, Katsouyanni K., Analitis A., Anderson R., Bisanti L., D'Ippoliti D., Danova J., Forsberg B., Medina S., Paldy A., Rabczenko D., Schindler C., Michelozzi P., 2008, Heat effects on mortality in 15 European cities: results of the PHEWE project. Epidemiology, 19 (5), p. 711–719 as well as Michelozzi P. et al, 2009, High temperature and hospitalizations for cardiovascular and respiratory causes in 12 European cities, Am J Respir Crit Care Med, 179, p. 383-389. (POLAND)
302	11	9	40	9	41	It is stated that "People over 65 years are also more strongly affected by air pollution due to ozone and other photochemical oxidants (Medina-Ramon et al., 2006)". This is based on evidence provided by studies carried out in the US, Latin America and China (the correct reference is: Medina-Ramon and Schwartz, 2008). However, studies conducted in Europe have not found a stronger association between daily mortality and ozone for the elderly compared to other age groups (Fischer et al. 2003; Parodi et al., 2005). (Vardoulakis, Sotiris, Health Protection Agency)
303	11	9	42	9	46	Reference cited suggests gender difference is due to differences in risk-taking behavior rather than more exposure in males. Suggest either deleting from "perhaps" or changing the reason to be consistent with the reference. (UNITED STATES OF AMERICA)
304	11	9	43	10	8	In the gender section there is a reference to WHO 2011b which doesn't seem to be very well reflected though. WHO 2011b also mentions e.g. that there is globally a gender-gap with respect to higher mortality of women from natural disasters and points more clearly to the importance of gender norms, roles and relations as important factors of determining vulnerability and adaptive capacity to the health impacts of climate change. WHO further highlights the consequent importance of gender-sensitiveness in assessments and in gender-responsive interventions that should also be better reflected somewhere in the chapter. (GERMANY)
305	11	9	50	0	0	Section 11.3.3.: For the sentence: "females were more affected than males in every age group except those aged 25-64" (in my opinion: it will be more applicable to exclude pregnant women, as pregnancy increase the metabolic temperature of the females during pregnancy, that makes them more sensitive to ambient heat). (Saad-Hussein, Amal, National Research Center)
306	11	9	50	9	50	I would add: Moreover, we observed that before 14 years, the prevalence of asthma is twice as high among boys as they have a higher IgE (Immunoglobulin E) concentration than females and this difference tends to decrease with age (Jarvis and Burney, 1998). (Jarvis, D. et P. Burney. 1998. «ABC of allergies. The epidemiology of allergic disease». British Medical Journal, vol. 316, p. 607-610.) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)
307	11	9	50	9	51	The age group of 25-64 is not typically reported as a single age group. I suggest rephrasing this statement and highlighting age groups 65 and older and children and young adults. (UNITED STATES OF AMERICA)
308	11	9	50	9	52	A reference for the statement is not provided by the authors. (NETHERLANDS)
309	11	9	54	9	54	The last sentence needs citation to support the statement. (UNITED STATES OF AMERICA)
310	11	9	54	9	61	The statement provided is randomly introduced in the text and there is no other reference to resilience until this stage. (NETHERLANDS)
311	11	10	0	0	0	Chapter 11.3.4 Are there studies on the impact of education on vulnerability? I can imagine that many socio -economic findings are due to a lower education of the poor population (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
312	11	10	1	10	2	Chapter 11, page 10, lines 1-2: It is stated that "…it appears that females are more strongly affected than males by high temperatures (Yu et al., 2010) and ozone air pollution (Medina-Ramon and Schwartz, 2008)". Although this is true for high temperatures, it should be noted that there was no gender related difference in mortality risk associated with ozone for people under the age of 60 in the study by Medina-Ramon and Schwartz (2008). (Vardoulakis, Sotiris, Health Protection Agency)

#	Ch	From Page	From Line	To Page	To Line	Comment
313	11	10	1	10	4	On food insecurity being more damaging to girls: this needs some explanation of the social dimensions. Note for example “Because of entrenched gender bias in many regions, young girls fare less well than boys in many aspects of early childhood, including receiving a worse diet and health care. In fact, there are tens of millions fewer women alive today than there would be in a world without gender discrimination and without social norms that favour sons.” http://www.unicef.org/mdg/index_genderequality.htm (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
314	11	10	2	10	2	Are there any geographic patterns or this finding is world-wide? (UNITED STATES OF AMERICA)
315	11	10	6	10	8	On pregnancy: adequate nutrition, water and sanitation should be added. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
316	11	10	8	10	8	Replace '()' with ';' and 'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
317	11	10	11	10	54	This section could also discuss the social determinants of health, and the consequences of inequities on health. See e.g. Friel S, Marmot M, McMichael AJ, Kjellstrom T, Vågerö D. Global health equity and climate stabilisation: a common agenda.. Lancet. 2008 Nov 8;372(9650):1677-83 (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
318	11	10	13	10	13	I doubt many social scientists would agree that such a reductive list of items are typically used to define socio-economic status and in particular most socio-economic indices would include measures around housing quality as key determinants. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
319	11	10	13	10	16	A reference for the statement is not provided by the authors. (NETHERLANDS)
320	11	10	13	10	52	In this section the current economic crisis affecting the European south and dramatically altering SES factors (unemployment and the proportion of those living in poverty) and the health provision system, which may manifest in other areas of the World deserves to be mentioned. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
321	11	10	14	10	15	Consider adding this reference to the discussion: Patz, Gibbs, Foley, Rogers, Smith. Climate change and global health: quantifying a growing ethical crisis. Ecohealth 2007;4(4):397-405. (UNITED STATES OF AMERICA)
322	11	10	16	10	18	As appropriate, it would be helpful to specify the time frames over which these relationships were observed. (Mach, Katharine, IPCC WGII TSU)
323	11	10	24	10	31	As appropriate, it would be helpful to specify the time frames over which these relationships have been observed. (Mach, Katharine, IPCC WGII TSU)
324	11	10	27	10	27	'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
325	11	10	28	10	30	This sentence belongs in the paragraph above…. This section has a rather jumbled line of argument. (AUSTRALIA)
326	11	10	30	10	30	'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
327	11	10	31	10	31	Please explain the phrase "small area measures of social disadvantage"?The meaning is unclear. (UNITED STATES OF AMERICA)
328	11	10	32	10	32	Please define 'SES'. (Burt, Peter, University of Greenwich)
329	11	10	32	10	34	Please provide citation to support the statement about housing differences. (UNITED STATES OF AMERICA)
330	11	10	36	10	36	I think the term is African Americans, not Black Americans. (AUSTRALIA)

#	Ch	From Page	From Line	To Page	To Line	Comment
331	11	10	36	10	36	There is a growing and important body of literature highlighting the impact of climate change on mental health - especially among indigenous and marginalized communities. See for instance Berry, H., Bowen, K., and Kjellstrom, T., (2010) Climate Change and mental health: a casual pathways framework. In International Journal of Public Health 55(2): 123-132. Referencing this body of literature in this section would be appropriate especially as it has been linked/documented in relation to particular ethnicities. (Ramos Castillo, Ameyali, United Nations University - Institute of Advanced Studies)
332	11	10	39	10	39	Delete comma after 'diabetes' (Burt, Peter, University of Greenwich)
333	11	10	40	10	40	insert comma after '2010)'. (Burt, Peter, University of Greenwich)
334	11	10	40	10	41	Section 11.3.4.:There is no explanation mentioned about the link between local crimes and disrupted social networks and climate change. For that: we could not consider that Black Americans have been reported to be vulnerable to heat related deaths because of the community-level characteristics. (Saad-Hussein, Amal, National Research Center)
335	11	10	40	10	41	Are crime rates related to climate-related deaths? Please clarify the relationship more clearly. (AUSTRALIA)
336	11	10	41	10	41	Reference required. (Burt, Peter, University of Greenwich)
337	11	10	41	10	52	Green, Donna, Ursula King, and Joe Morrison. "Disproportionate burdens: the multidimensional impacts of climate change on the health of Indigenous Australians." Medical Journal of Australia 190.1 (2009): 4. ; Berrang-Ford, Lea, et al. "Vulnerability of indigenous health to climate change: a case study of Uganda's Batwa Pygmies." Social Science & Medicine (2012); Hofmeijer, I., et al. "Community vulnerability to the health effects of climate change among indigenous populations in the Peruvian Amazon: a case study from Panaillo and Nuevo Progreso." Mitigation and Adaptation Strategies for Global Change (2012): 1-22. (Ramos Castillo, Ameyali, United Nations University - Institute of Advanced Studies)
338	11	10	44	10	46	The timeframe for this observed impact should be specified. (Mach, Katharine, IPCC WGII TSU)
339	11	10	47	10	47	Reference style needs correcting. (Burt, Peter, University of Greenwich)
340	11	10	51	10	52	The described link between mental illness, suicide and increased vulnerability to climate change in indigenous populations in Australia is not clear and needs to be explained better. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
341	11	10	52	10	52	Reference style needs correcting and references need to be in chronological order. (Burt, Peter, University of Greenwich)
342	11	11	1	11	9	This paragraph couldn't illustrate well on how public health and other infrastructure affect the vulnerability. The Case of Study in the Phoenix show the number of heat distress calls during heat waves was higher in areas affected by the urban heat island effect.This could be used to show that well-organized the heat wave prepares(such as effective emergency call) can decrease the heat vulnerability. (Tan, Jianguo, Shanghai Meteorological Institute)
343	11	11	1	11	9	Include Built Infrastructure in the heading and expand section to include discussion of use of building materials, location, design--incorporating screens, green space etc. The examples used are fine but discussion needs to be broadened. This section should then tie into a discussion in 11.7 of adaptation options, consideration of cultural norms, and potential unintended consequences. (UNITED STATES OF AMERICA)
344	11	11	1	11	9	Section 11.3.5 on infrastructure seems way too short in comparison to other sections. This is particularly the case for failing urban water systems. Recommend some text and references about the condition of such systems in differing regions of the world. (UNITED STATES OF AMERICA)
345	11	11	1	11	9	Section 11.3.5: This section does not provide a comprehensive assessment of various types of infrastructure and human health. It would be helpful to include some material on health surveillance, early warning systems, cooling centers, water sanitation, energy/power generation for heating/cooling, and blackouts in particular, on health outcomes. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
346	11	11	3	11	9	This section is very short - there are many other examples that could be discussed here. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
347	11	11	3	11	9	The Public Health and Other Infrastructure should be carefully characterized. The role of many other factors besides de ones presented should be discussed. Factors such as Early Warming Systems, Hospital's infrastructure, electricity and water provision, as well as health professional in times of crisis should be further discussed. (NETHERLANDS)
348	11	11	3	11	9	Section 11.3.5 Public Health and other Infrastructure section seems underdeveloped and could use more focus on WASH infrastructure, Early Warning Systems, vector control. (UNITED STATES OF AMERICA)
349	11	11	4	11	4	This assertion on Cuba should be sourced. (Godefridi, Drieu, Cogito)
350	11	11	7	11	9	An example of urban heat island does not fit in this section as it does not represent an infrastructure. See previous comments on the use of this citation. (UNITED STATES OF AMERICA)
351	11	11	7	11	9	It would be helpful to specify the timeframe over which this effect was observed. (Mach, Katharine, IPCC WGII TSU)
352	11	11	12	11	37	Section 11.3.6, Projections for Vulnerability: There may be benefit in including wealthy country approaches here, for example Lindgren et al. (2012). It is likely that a risk assessment approach will be used in some settings, particularly food-borne illnesses in countries with strong food safety agencies. Lindgren E, Andersson Y, Suk JE, Sudre B, Semenza JC. Public health. Monitoring EU emerging infectious disease risk due to climate change. Science. 2012 Apr 27;336(6080):418-9. doi: 10.1126/science.1215735. http://www.sciencemag.org/content/336/6080/418.full.pdf (UNITED STATES OF AMERICA)
353	11	11	14	11	14	The sentence does not make sense: “may”, “climate change”, “strongest” and “vulnerability” are incommensurable variables. This proposition can not be true, of false. Besides, this Malthusian view of health has never been verified: there is no correlation between health and the volume of population per se. What matters, historically and universally, is first and foremost the degree of economical and technological development. (Godefridi, Drieu, Cogito)
354	11	11	14	11	14	Instead of saying " Population growth may be the strongest influences on vulnerability to […]", plesase say "Population growth may be the strongest drivers on vulnerability to […]" (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
355	11	11	17	11	20	This sentence misses the key point about access to water in cities which is the high proportion of (mainly poor) people who lack access to safe drinking water. The use of an arbitrary figure of 100 per capita per day renewable water resources for defining chronic water shortage is unreliable. There is limited evidence that 100 l/c//d renewable resources are required (most estimates - e.g. Howard & Bartram 2003; Gleick 2006) suggest 50 l/c/d is the minimum for domestic use. Whether this water is solely for renewable resources opens up a much wider debate on how this is defined. I suggest this sentence is deleted. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
356	11	11	20	11	22	It would be worth noting at this point 2.4 billion lack access to improved sanitation and over 1 billion practice open defecation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
357	11	11	21	11	21	Is the described business as usual scenario a scenario of population growth? It would be helpful to clarify this. (Mach, Katharine, IPCC WGII TSU)
358	11	11	35	11	36	Reference cited appears to be incomplete (no journal name). (UNITED STATES OF AMERICA)
359	11	11	40	0	0	Authors may consider adding a small table highlighting key findngs from this section. (Chatterjee, Monalisa, IPCC WGII TSU)
360	11	11	40	11	40	"11.4 Direct impacts of climate Meteorological Changes on Health". It cannot understand the meaning of "Climate Meteorological Changes". It can be " Direct Impacts of Weather and Climate on Health (Tan, Jianguo, Shanghai Meteorological Institute)
361	11	11	40	11	40	What are Climate Meterological Changes? Change to read Direct Impacts of Climate Change on Health, or at least Climate-related Changes of Weather on Health. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
362	11	11	40	11	40	The term used in chapter tilte "Impacts of Climate Meteorological Change on Health" is unclear. May be the term "...Climate and Meteorological Changes..." will be better. (POLAND)
363	11	11	40	11	53	The title should be revised. It could be "impacts of climatic changes on health" or "... impacts of climate and weather changes on health". (UNITED STATES OF AMERICA)
364	11	11	40	12	20	Can be expanded with newer studies and explained - which factors are relevant for heat and cold estimation/assessement (Matzarakis, Andreas, Albert-Ludwigs-University Freiburg)
365	11	11	40	12	20	Please also consider studies with complex approaches - 87. Matzarakis, A., Muthers, S., Koch, E., 2011: Human-biometeorological evaluation of summer mortality in Vienna. Theoretical and Applied Climatology 105, 1-10. , 68. Muthers, S., Matzarakis, A., Koch, E., 2010: Climate Change and Mortality in Vienna—A Human Biometeorological Analysis Based on Regional Climate Modeling. Int. J. Environ. Res. Public Health 7, 2965-2977 (Matzarakis, Andreas, Albert-Ludwigs-University Freiburg)
366	11	11	40	14	42	In Section 11.4. many other direct impacts of climate meteoreological changes on health are lacking. Impacts from droughts, storms and fires, for example have been left out to the discussion. (NETHERLANDS)
367	11	11	42	0	0	11.4.1. Heat and cold extremes. In this section, the authors refer to acclimatisation and acclimatized people. It would be helpful to know the definition behind this and if it varies according to the studies. (Hamilton, Jacqueline M., Hamburg University)
368	11	11	44	11	53	This paragraph should be moved to a higher level chapter, as the same considerations are true for other health issues (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
369	11	11	44	12	5	The results of European projects (PHEWE, CECILIA and EuroHeat) should be mentioned, e.g. Improving public health responses to extreme weather/heat-waves – EuroHEAT. Technical report, 2009, WHO Regional Office for Europe, Copenhagen, Denmark. As well as Blazejczyk K., McGregor G., 2008, Mortality in European cities and its relations to biothermal conditions. [In:] K. Klysik, J. Wibig, K. Fortuniak (eds.) Klimat i bioklimat miast, Wydawnictwo Uniwersytetu Łódzkiego, p. 313-324. (POLAND)
370	11	11	44	12	20	There is no mention of recent extreme cold regimes during winter that have received broad attention in the news. Moreover, the regionality of the response is illustrated by the J-curves as shown for example by Curriero et al. (2002) (sassi, fabrizio, Naval Research Laboratory)
371	11	11	45	0	0	Authors may consider coordinating with regional chapters and consolidate findings on this topic in table 11-1. (Chatterjee, Monalisa, IPCC WGII TSU)
372	11	11	50	11	51	Please provide citation to support the statement about mandate to public health agencies. (UNITED STATES OF AMERICA)
373	11	12	2	12	3	The related topic in WGI is discussed in AR5 WGI Ch2.6. (Plattner, Gian-Kasper, IPCC WGI TSU)
374	11	12	3	12	3	the precision with [to be updated with data AR5 WG1] is not useful in the the case that the SREX has been alreday published; please insert just the SREX reference… (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
375	11	12	3	12	3	"very likely" should be italicized for clarity. Updating of the statement based on the working group 1 contribution to the 5th assessment report should be ensured. (Mach, Katharine, IPCC WGII TSU)
376	11	12	5	0	0	Should read: "… suggests that NEGATIVE impacts on health WILL BY FAR outweigh...." as the article by Kinney et al. given as reference in fact states: "De manière surprenante, à partir d'une analyse de la littérature, nous concluons qu'il semble peu probable que la mortalité hivernale diminue avec l'augmentation des températures." - questionning whether there will be any decline in cold-related mortality. (Zacher, Winfried, Germanwatch)
377	11	12	5	12	5	Put reference to this claim (NETHERLANDS)
378	11	12	8	12	11	Section 11.4.1.: The relation between hot days and increases in mortality: it was mentioned that it was reviewed in section 11.2.2, while, it is explained in section11.4.1.1 and Figure 11-2 (section 11.2.2 is not written in this chapter). (Saad-Hussein, Amal, National Research Center)

#	Ch	From Page	From Line	To Page	To Line	Comment
379	11	12	8	12	11	Section 11.2.2 does not exist. Please specify the location of the support for this assertion. Do you mean part of 11.3, or 11.4.1.1 below? (Mastrandrea, Michael, IPCC WGII TSU)
380	11	12	10	12	11	I couldn't find the section 11.2.2. the authors refer to and therefore I don't know which studies they mean. Please clarify (Stilianakis, Nikolaos, European Commission)
381	11	12	10	12	11	A review in section 11.2.2 is mentioned here, but in fact it is not included in section 11.2.2.(Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
382	11	12	10	12	11	Reference to 11.2.2 is invalid; there is no 11.2.2. This is a major omission since there are no supporting studies listed. (UNITED STATES OF AMERICA)
383	11	12	10	12	11	Here, the reader is refered to "studies reviewed in section 11.2.2 above". However, no such section is present, and I could not identify what the correct reference should be. (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
384	11	12	11	12	12	Should this be “caused a relative increase”? Otherwise the implication is that there has been an observed increase in heat-related deaths, and earlier material in the chapter suggests that that is either not the case or unclear. (Stone, Dáithí, University of Cape Town)
385	11	12	11	12	12	The logical linkages implied by "therefore" within this finding seem somewhat weak--it may be beneficial to provide a level of confidence for the overall statement. (Mach, Katharine, IPCC WGII TSU)
386	11	12	11	12	12	The logic of this causal statement is not clear. Are there studies that make this linkage, or is this an assertion of the author team? Please avoid making ad hoc causal statements, instead using conditional formulations where useful. (Mastrandrea, Michael, IPCC WGII TSU)
387	11	12	16	12	16	Comma required after 'Quantification'. (Burt, Peter, University of Greenwich)
388	11	12	19	12	20	For clarity, the sentence "For other extreme events and weather disasters (such as floods or drought), there is no good evidence of a climate change signal" could be amanded with "in the number of deaths." (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
389	11	12	19	12	20	English can be wonderfully ambiguous. Is this referring to a signal in measures of the climate, or of impacts of trends in these events on disease? (Stone, Dáithí, University of Cape Town)
390	11	12	19	12	20	This statement is true at a global level, but its applicability to some global scales and different types of flood-related extremes (for example, coastal high water levels and heavy precipitation) varies, which could potentially be recognized through specific reference to relevant findings in Working Group I and Chapter 3 of this report. (Mach, Katharine, IPCC WGII TSU)
391	11	12	19	12	20	Please check the accuracy and precision of this statement, and cross reference the appropriate sections of WGI AR5. For heavy precipitation, for example, WGI assigns medium confidence to a human contribution to the observed increase in frequency of such events in some regions. See WGI for details. (Mastrandrea, Michael, IPCC WGII TSU)
392	11	12	25	0	0	instead of 'circulatory diseases', 'diseases related with circulatory system' would sound better. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
393	11	12	25	12	26	A reference for the statement is not provided by the authors. (NETHERLANDS)
394	11	12	25	12	31	The mechanism of heat impacts on human health are excelent discribe in: Improving public health responses to extreme weather/heat-waves – EuroHEAT. Technical report, 2009, WHO Regional Office for Europe, Copenhagen, Denmark. (POLAND)

#	Ch	From Page	From Line	To Page	To Line	Comment
395	11	12	25	13	29	This section, entitled "Mechanisms" refers to mechanisms in the first 2 paragraphs. The other text will fit better in the 11.4.1. Also, heatstroke is not mentioned as an effect whilst it is a major cause for morbidity and mortality during heat waves. It is worth having a comparative assessment of the number of deaths that have been attributed to heat and heat waves (the 2003 heat wave is mentioned later in the Chapter, but in fact it is not the only one with devastating effects; a heat wave in 1987 in Greece, caused 2000 excess deaths only in Athens; see Katsouyanni K, Pantazopoulou A, Touloumi G, Tselepidaki I, Moustris K, Asimakopoulos D, Poulopoulou G, Trichopoulos D. Evidence for interaction between air pollution and high temperature in the causation of excess mortality. Arch Environ Health 1993; 48: 235-242.). The number of deaths caused by heat is much larger than the number of deaths caused by floods which is emphasized more later in the Chapter (e.g. page 14, lines 7-8). A comparative table would be useful. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
396	11	12	27	12	28	Poor English: move 'are important' to after 'conditioning'. (Burt, Peter, University of Greenwich)
397	11	12	29	12	31	I would refrain from writing about suicides in the context of the direct impacts "heat and cold extremes". I do not doubt that the listed studies found a relation between suicide and temperature, but certainly there is no impact of heat or cold extremes on suicides. (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
398	11	12	29	12	31	A proper discussion is lacking and generalization is not consubstantiated. What type of association is there? What do ambient temperatures mean? Only low temperatures or also high temperatures? (NETHERLANDS)
399	11	12	29	12	31	Although there is a seasonal cycle in suicide, it is not clear whether or not it is associated with changes in temperature or other environmental/social factors. See Dixon and Kalkstein 2009. (UNITED STATES OF AMERICA)
400	11	12	34	0	0	I wonder how "physiologic tolerance to temperature" is quantified? Most of the studies include direct and indirect heat related health effects. Especially with respect to the indirect heat related impacts, there is no "physiological tolerance" level that could be determined. (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
401	11	12	41	12	49	Maybe a proportion of the heat related mortality could be attributed to the mild influenca season in 2003 (in Germany however, there was comparatively strong influenca season (16,000 compared to 5,000 to 8,000 in the previous years) but at the same time also a very high heat related mortality during August 2003), the heat wave 2003 was, on the other hand, a very long heat wave and heat load was extremely high. The high intensity of this heatwave should be mentioned in this context at least . (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
402	11	12	42	12	42	Space required aftyer ')'. (Burt, Peter, University of Greenwich)
403	11	12	42	12	43	The sense of this is not clear. Did 80% of peope aged over 75 die, or were 80% of the deaths in people over 75? (Burt, Peter, University of Greenwich)
404	11	12	42	13	45	Discussion of attribution in section on heat and cold extremes goes well beyond these exposures and conflates issues with heat with issues of other types of exposures and trends. Suggest separating out a discussion of technical challenges with studies from any specific exposure. (UNITED STATES OF AMERICA)
405	11	12	43	12	44	What percentage was 3,000 of the total (indeed, what was the total)? (Burt, Peter, University of Greenwich)
406	11	13	0	13	0	the outcome, found the gains----- (Huang et al 2012)" (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
407	11	13	2	13	4	But there are also studies that don't find this increase (e.g. Nischke et al., 2007 (Med J Aust, 187, 662-665) in Australia: No significant increase in morbidity during heat waves) (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))

#	Ch	From Page	From Line	To Page	To Line	Comment
408	11	13	2	13	9	after '…in the same populations.'Add one sentence to describe the lag day effect of heat and cold. "In many studies, always used the lags of 0 to 3 days for heat effects, and lags of 2 to 5 days for cold effects. Recently Anderson and Bell fit cold-related mortality with a 25-day moving average of previous temperatures in a multi-city analysis. However, this long distributed lag likely captured seasonal elevations in mortality, and thus is difficult to interpret as a direct effect of cold temperatures. Therefore, the cold effect is still not very clear." reference: Barnett, A. G. Temperature and cardiovascular deaths in the US elderly: changes over time. Epidemiology.2007, 18, 369-372. Anderson, B. G. & Bell, M. L. Weather-related mortality: how heat, cold, and heat waves affect mortality in the United States. Epidemiology.2009, 20, 205-213. (Liu, Bo, National climate center)
409	11	13	2	13	42	The discussion here is missing a study by Li et al (2011) in journal Climatic Change that address heat wave morbidity over 16 yr record, and also projects to future. Could be mentioned here in observed past associations, but also in future projections section. For Milwaukee threshold temperature responses for hospital and ER admissions for diseases of the GU tract (e.g, kidney stones) and Endocrine (e.g, diabetes) and injuries due to self harm (e.g, suicide attempts). Saw strong relationship to respiratory diseases but not a threshold effect. NOTE: WRONG CITATION ON PAGE 26, line 19, should be this study of Milwaukee: Li, Sain, Mearns, Anderson, Kovats, Ebi, Patz. The impact of heat waves on morbidity in Milwaukee, WI. Climatic Change, 2011. (UNITED STATES OF AMERICA)
410	11	13	4	13	7	This part does not fit in here. It should go to 11.5.2 (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
411	11	13	4	13	7	from "Rapid changes-----(raffel et al,2012)" seems misfit as the microbes transmitted by vectors are not exposed directly to climatic conditions. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
412	11	13	5	13	5	insert comma after 'is' and after 'speaking'. (Burt, Peter, University of Greenwich)
413	11	13	9	13	19	Much of this is repeating page 12, lines 7-20, sometimes verbatim. (Stone, Dáithí, University of Cape Town)
414	11	13	12	13	14	To what degree is this statement robustly supported by available evidence and agreement? Qualification of the statement with a level of confidence or summary terms for evidence and agreement should be considered. (Mach, Katharine, IPCC WGII TSU)
415	11	13	12	13	15	The statement here: "Since the association between unusually hot days and increases in mortality is so well documented, it is possible to conclude that an observed increase in daily maximum temperatures is likely to have caused an increase in the number of heat-related deaths" is a repetition of the statement in chapter 11, page 12, lines 11-12, but without the limitation to "mid latitude populations". I suggest to merge these paragraphs and keep the more precise (earlier) statement. (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
416	11	13	12	13	15	Again, the logic of this causal statement is not clear. Are there studies that make this linkage, or is this an assertion of the author team? Please avoid making ad hoc causal statements, instead using conditional formulations where useful. (Mastrandrea, Michael, IPCC WGII TSU)
417	11	13	12	13	17	Pg 13, lines 12-17 repeats nearly verbatim the text on pg 12, lines 11-18 (UNITED STATES OF AMERICA)
418	11	13	13	13	14	As you state in line 13 that "…the association between…hot days and increases in mortality is so well documented.." the second part of the sentence should read ".. is VERY likely .." (Zacher, Winfried, Germanwatch)
419	11	13	14	0	0	As with page 12, line 11, should this be “relative increase”? (Stone, Dáithí, University of Cape Town)
420	11	13	15	13	16	The statement here: "The decrease in minimum temperatures may have contributed to a decline in deaths associated with cold spells in the same populations" seems a repetition from the statement in chapter 11, page 12, lines 12-13, but without the important caveat "but there is no strong evidence in the literature so far." (chapter 11, page 12, lines 13-14). I prppose to merge these paragraphs or at least add the caveat about lack of strong evidence in the literature. (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))

#	Ch	From Page	From Line	To Page	To Line	Comment
421	11	13	15	13	17	The sentence "The decrease in ---(Hajat et al,2010)" may be avoided as the same message has already been conveyed on page on page 12 from line 12-14 and line 16-18 (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
422	11	13	15	13	19	The same texts is repeated in page 12, lines 12-20. It should therefore be deleted.(Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
423	11	13	16	13	19	The part "There are very few studies of the large developing country populations in the tropics, 17 and those which do exist point to effects of heat, but not cold, on mortality (Hajat et al., 2010). There is also 18 significant uncertainty over the degree of physiological, social or technological adaptation to increasing heat over 19 long time periods" is an exact repetition from chapter 11, page 12, lines 16-19 (Min, Erik, Royal Netherlands Meteorological Institute (KNMI))
424	11	13	17	13	19	A reference for the statement is not provided by the authors. (NETHERLANDS)
425	11	13	22	0	0	Section 11.4.1.2: The use of "near-future" in the title of this and similar subsequent sections is confusing. Impacts discussed here seem to span the 21st century, and no longer-term impacts are discussed. Please label as "Future Impacts" or specify the time horizon. (Mastrandrea, Michael, IPCC WGII TSU)
426	11	13	24	13	24	Is "likely" is being used as a likelihood term here, it should italicize. Casual usage should be avoided. (Mach, Katharine, IPCC WGII TSU)
427	11	13	24	13	42	This passage is missing climate change modeling study by Peng et al. projected an increase of between 166 and 2,217 excess deaths per year from heat wave-related mortality in Chicago by 2081Ì2100. Peng, R.D., et al., Toward a Quantitative Estimate of Future Heat Wave Mortality under Global Climate Change. Environmental Health Perspectives, 2011. 119(5): p. 701-706. (UNITED STATES OF AMERICA)
428	11	13	24	13	42	Possibly mention the projected impact of heat on health for 15 European cities (using SRES) for 2030 estimated by Baccini et al (2011) Impact of heat on mortality in 15 European cities: attributable deaths under different weather scenarios. J Epidemiol Community Health, 65:64e70. doi:10.1136/jech.2008.085639 (Matthies, Eva Franziska, Consultant)
429	11	13	27	13	30	The relevant scenarios of climate change for these outcomes should be specified. (Mach, Katharine, IPCC WGII TSU)
430	11	13	28	13	28	We suggest replacing "forecast" with "projected". (UNITED STATES OF AMERICA)
431	11	13	29	0	0	Is 2070 really "near future"??? (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
432	11	13	32	0	0	I can't find these "reasons given above", for the uncertainty of the devolpment of winter mortality. Please list them again (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
433	11	13	32	13	33	The sentence" For reasons given above ----Mills,2013)" confuses in the context of sentence on page 12, from 14 to 16 (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
434	11	13	32	13	42	The statement “Overall, the increase in heat-related mortality is projected to overweigh gains due to fewer cold periods…” is also supported by findings presented by Vardoulakis and Heaviside (2012) which indicate that heat-related mortality in the UK is estimated to increase by approximately 70% in the 2020s, 260% in the 2050s, and 540% in the 2080s, compared with the 2000s heat-related mortality baseline of around 2,000 premature deaths, in the absence of any physiological or behavioural adaptation. Cold-related mortality is projected to remain substantially higher than heat-related mortality in the first half of the 21st century, although it is estimated to decline by 2% in the 2050s and by 12% in the 2080s. (Vardoulakis, Sotiris, Health Protection Agency)
435	11	13	33	13	35	It would be preferable to specify the nature of the evidence supporting this overall statement, beyond the much more specific examples provided subsequently. (Mach, Katharine, IPCC WGII TSU)
436	11	13	35	13	37	For this projection, the relevant time frame and scenarios of climate change should be specified. (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
437	11	13	35	14	31	Note that the impact of flooding has widely understood consequences in terms of moulds and associated allergies (UNITED STATES OF AMERICA)
438	11	13	37	13	38	sentence is not clear. It may be " Another study from Brisbane,Australia ,using the years of life lost as (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
439	11	13	39	13	40	It would be helpful to specify whether this projection holds across a range of scenarios of climate change (and which ones were used in the study?). (Mach, Katharine, IPCC WGII TSU)
440	11	13	40	0	0	A 70% increase in health related mortality seems a little excessive , especially coming from one study (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
441	11	13	40	13	42	Populations ability to adjust to increased heat should be further explored and discussed. Acclimatization literature should be used to be able to attribute certainty. (NETHERLANDS)
442	11	13	45	14	29	Section 11.4.2: The entire section reads somewhat disjointed. Page 13, line 50 - "Most of the losses occurred..." Is use of word 'losses' in reference to economic losses or health impacts and loss of life? Both are mentioned throughout section. Page 13, line 53-54 - "developed countries are not immune." Again, considering the section's references to increased impact in low-income countries, there is no clarification as to whether this statement refers to health impacts of flooding, or just the basic occurrence of flooding. Is there a difference in how sanitation infrastructure is impacted? (UNITED STATES OF AMERICA)
443	11	13	45	14	31	Section 114.2. is called 'Floods' but in the text (Page 14, Line 5), focus is given to 'storms and floods'. This should be distinguised or name of section changed. (NETHERLANDS)
444	11	13	45	14	33	This section as the section before on 'Heat and cold extreme', should include 'near-future impacts' for consistency with other sub-sections. (NETHERLANDS)
445	11	13	47	13	48	First line says flood "most frequent". Second line is supposed to affirm this but uses statement of number of people affected, not frequency. (UNITED STATES OF AMERICA)
446	11	13	47	13	48	Does one year's data confirm or refute a long-term statement? I suggest removing this comparison. (Mastrandrea, Michael, IPCC WGII TSU)
447	11	13	47	14	31	It's unclear what the role of climate change on floods is for this section. Recommend updating the section to include a statement on projections for climate change effects on flooding. In chapter 3 of WG2's SOD there is a section on projections for flooding and uncertainty and my recommendation is to consider the results from that section when discussing the effects on human health in chapter 11. (Landuyt, William, ExxonMobil Research and Engineering)
448	11	13	48	13	49	The rigor of the logic supporting whether the finding is "still true" should be carefully considered--it seems that statistics for a single year are not sufficient to support the statement. On line 49, it would be preferable to specify what is meant by "the total number of victims"--victims of weather and climate related disasters for 2010? Finally, what types of disasters are included in the analysis supporting the whole sentence--weather and climate related disasters only? (Mach, Katharine, IPCC WGII TSU)
449	11	13	52	13	53	World Bank 2011 reference missing. (Missing references prevent reviewers from checking facts!) (Parker, David, Met Office Hadley Centre)
450	11	13	52	13	53	Th reference (World Bank, 2011) is missing in the reference at the end of the chapter; it should be included. (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
451	11	13	53	13	53	Please correct the reference to the damaging floods in Australia from '2010' to '2010-11' (AUSTRALIA)
452	11	13	53	13	54	Should also mention floods in central Europe during August 2002, and the flooding in the UK during summer 2007 which cost the UK economy £3.2bn. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)

#	Ch	From Page	From Line	To Page	To Line	Comment
453	11	13	53	13	57	"after 2011). To be added a new sentence : During the last decade, in the European Region, 1000 persons are reported to have been killed by floods and more than 3.4 million affected. A review of European data for the years 2000–2011 shows that the number of deaths from flooding was highest in central Europe and the former Soviet Republics. " Reference: Menne B, Murray V (edds). 2013. Floods in the WHO European region: health effects and their prevention. WHO Regional Office for Europe, Copenhagen, Denmark " (Kendrovski, Vladimir, World Health Organization Regional Office for Europe)
454	11	13	54	13	54	Reference style needs correcting. (Burt, Peter, University of Greenwich)
455	11	14	0	0	0	The literature on malaria and dengue in relation to climate change has been contradictory and controversial, with disputed claims of highland malaria changing in response to predicted climate change (5). However, Chapter 11 does not address this controversy head on. We are thus left with no real overview of where these predictions currently sit. In the Executive Summary (ES) on page 3 the "Increased risks of …. vector-borne infections is predicted [high confidence]". The ES therefore seems to give a stronger view than the main text (11.5.1), which is saying that the evidence is a bit mixed (my interpretation). (Nichols, Gordon, European Centre for Disease Prevention and Control)
456	11	14	12	0	0	WHO/HPA 2012 reference missing (Parker, David, Met Office Hadley Centre)
457	11	14	12	14	12	WHO/HPA (2013) Floods in the WHO European Region: Health effects and their prevention, Menne, B and Murray, V (eds), Copenhagen, Denmark. available at http://www.euro.who.int/__data/assets/pdf_file/0020/189020/Floods-in-the-WHO-European-Region-health-effects-and-their-prevention-final-version2.pdf; this reference is mentioned in the text but not listed in the references (page 56) (Matthies, Eva Franziska, Consultant)
458	11	14	13	14	16	The text implies two studies from Bangladesh but only gives one reference. (UNITED STATES OF AMERICA)
459	11	14	14	0	0	"on flooding" to "of flooding"? (Stone, Dáithí, University of Cape Town)
460	11	14	15	0	29	Flood related disease and injuries are a major neglected issue. Not only is it a phenomenon whose incidence and scope is increasing, the potential for ecological changes and therefore vector-borne and other infectious disease. Malnutrition in flood probne children is also a issue on which evidence is presented in the literature. Cholera and leptospirosis has been associated to floods in recent studies These references could be usefully incorporated. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
461	11	14	15	14	16	The sentence "Another report-----(Milojevic et al 2012)" may be deleted as the same message has been written in preceeding sentence under same reference. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
462	11	14	18	14	29	Regarding floods: Text mentions malaria and dengue vectors and leptospirosis. The list is longer. http://www.who.int/hac/techguidance/ems/flood_cds/en/ mentions "Floods can potentially increase the transmission of the following communicable diseases: Water-borne diseases, such as typhoid fever, cholera, leptospirosis and hepatitis A; Vector-borne diseases, such as malaria, dengue and dengue haemorrhagic fever, yellow fever, and West Nile Fever". (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
463	11	14	19	14	20	The sentence on the contamination of water is poorly phrased as it implies bacterial contamination may be separate from sewage contamination - the reality is the source of pathogenic bacteria (and viruses and protozoa) is human and animal faecal material (and this was usually found in sewage). (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
464	11	14	20	14	21	This sentence needs clarification. Are infectious diseases themselves impacted by floods? Vectors for diseases other than dengue and malaria can be affected by floods. Floods may increase breeding sites for some vectors or floods may wash away breeding sites, so there could be increased or decreased transmission of vector-borne disease. (Lewis, Nancy Davis, East-West Center)
465	11	14	27	0	0	Paranjothy et al. 2011 reference missing (Parker, David, Met Office Hadley Centre)

#	Ch	From Page	From Line	To Page	To Line	Comment
466	11	14	31	14	31	This section may include material on projected impact of coastal flooding due to sea level change and increases in tropical storms. For example: Hallegatte, Stephane, et al. "Assessing climate change impacts, sea level rise and storm surge risk in port cities: a case study on Copenhagen." Climatic change 104.1 (2011): 113-137. Khan, A. E., Xun, W. W., Ahsan, H., & Vineis, P. (2011). Climate Change, Sea-Level Rise, & Health Impacts in Bangladesh. Environment: Science and Policy for Sustainable Development, 53(5), 18-33. (UNITED STATES OF AMERICA)
467	11	14	31	14	31	The reasoning behind this statement is unclear, as stated in my comment on page 4 lines 31-32. This does not mean nothing is known about projected impacts of storms and flooding. Are there relevant conclusions from AR4 that still hold? (Mastrandrea, Michael, IPCC WGII TSU)
468	11	14	34	14	42	Any relation (link-up) to the ozone depletion surely discussed by WG I? (sassi, fabrizio, Naval Research Laboratory)
469	11	14	34	14	42	The direct impacts of ultraviolet radiation should be expanded as no discussion is presented on the mechanisms and near-future impacts, for consistency with other sub-sections (NETHERLANDS)
470	11	14	34	14	42	It is stated that “Higher temperatures in the northern countries with temperate climates may result in an increase in the time which people spend outdoors and, thus in additional UV-induced-adverse effects.” However, the benefit of being outdoors should be also taken into account. Reasonable sun exposure is likely to be beneficial for the production of vitamin D, and is likely to be linked with exercise, fresh air and circadian rhythm entrainment. (Reference: Vardoulakis and Heaviside, 2012) (Vardoulakis, Sotiris, Health Protection Agency)
471	11	14	36	14	32	Ultraviolet radiation is also a risk factor for cataract formation. This is currently not mentioned in the section on ultraviolet radiation and should be captured - it is especially relevant in populations that are rapidly ageing. (UNITED STATES OF AMERICA)
472	11	14	36	14	38	!! It is absolutly not true that UV level is dependent on air temperature. It can be only any coincidecne between Increased UV level in tropical countries where air temperature is very high. !! (POLAND)
473	11	14	36	14	42	Stratospheric cooling related to increased CAPs also increases rate of statospheric ozone depletion reactions. Should this be mentioned here? CC is related not just through temperatures. (UNITED STATES OF AMERICA)
474	11	14	36	14	42	We suggest a more nuanced discussion of UV-B exposure, climate change, and vitamin D synthesis. Consider this reference and similar: 1: Corrêa MD, Godin-Beekmann S, Haeffelin M, Bekki S, Saiag P, Badosa J, Jégou F, Pazmiño A, Mahé E. Projected changes in clear-sky erythemal and vitamin D effective UV doses for Europe over the period 2006 to 2100. Photochem Photobiol Sci. 2013 Apr 3. [Epub ahead of print] PubMed PMID: 23549360. (UNITED STATES OF AMERICA)
475	11	14	37	14	37	Delete comma after 'States'. (Burt, Peter, University of Greenwich)
476	11	14	40	14	42	On the other hand, it can not be excluded that above a certain temperature level, people will prefer to stay indoors because it is too hot be be outside. Another point is the awareness. People are more aware of UV Radiation if it is hot at the same time than during mild spring periods. (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
477	11	14	41	14	42	The sentence "Notably, however, skin cancerrates are rising already in many countries for other reasons, such as changes in travel and recreations" must be rewritten. Change in travel and recreation (what it exactly mean) don't cause increase in cancer risk. Increase in skin cancer risk is caused by the changes of recreation habits (extension of time when people are exposed to UV radiation. Cite also the publication: L’Atlas environnement du Monde Diplomatique, Analyses et solutions, 2007, Le Monde Diplomatique, Paris. See also: Blazejczyk K., Blazejczyk A., 2012, Changes in UV radiation intensity and their possible impact on skin cancer in Poland. - Geographia Polonica, 85, 2 p 57-64. (POLAND)
478	11	14	41	14	42	Please provide citations that support this statement. (Mastrandrea, Michael, IPCC WGII TSU)
479	11	14	46	14	46	Please add s sentence about one health connection between animals, humans and environment. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
480	11	14	47	14	52	11.5.1. Vector-borne and Other Infectious Diseases Table 11-1 summarized a vast amount of data, and would benefit from summarizing and discussion. It is too easy to overlook the table. This reviewer suggests that the key literature or selected reviews be collated and reported in text under the headings for the specific diseases (11.5.1.1. malaria and 11.5.1.2. dengue). This reviewer suggests that the header 11.5.1. begin with a brief review of papers that study multiple mosquito-borne diseases. The authors might consider distinguishing introductions from management of endemic disease since the two situations involve distinct public health reactions; and what is learnt in one setting may help the other (Semenza et al. 2012). Semenza JC, Suk JE, Estevez V, Ebi KL, Lindgren E. Mapping climate change vulnerabilities to infectious diseases in Europe. Environ Health Perspect. 2012 Mar;120(3):385-92. doi: 10.1289/ehp.1103805. Epub 2011 Nov 23. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3295348/pdf/ehp.1103805.pdf (UNITED STATES OF AMERICA)
481	11	14	47	18	7	a) it's suggested to include West Nyle in mentioned VBD; B) in general there is no mention on synergy for VBD with biodiversity loss and its effects on health of plants, animals and humans, specially for infectious diseases. (biblio 1)Biodiversity and Infectious Diseases, Harvard School of public health - http://chge.med.harvard.edu/topic/biodiversity-and-infectious-diseases;2)Serge Morand (2011). Infectious Diseases, Biodiversity and Global Changes: How the Biodiversity Sciences May Help, The Importance of Biological Interactions in the Study of Biodiversity, Dr. Jordi LÃ³pez-Pujol (Ed.. - http://www.intechopen.com/search?q=serge+morand; 3) Felicia Keesing et al, Nature ,2010; 4) The health effect of climate change impacts onbiodiversity- COHAB initiative, 2010; 5)MONTIRA J. et al, Biodiversity Loss Affects Global Disease Ecology "- December 2009 / Vol. 59 No. 11 • BioScience 945 ; 6)D. Zaghi et al "literature study on impact of biodiversity -changes on human health" commissioned by EU Commission,DG ENV 2010 on - www.comunitambiente.eu; 7)Michelle D. Staudinger et al . 2012. Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services | Technical Input to the 2013 National Climate Assessment (ITALY)
482	11	14	49	14	50	Ticks are not insects. It would be better to use 'vectors' or 'arthropods'. (UNITED STATES OF AMERICA)
483	11	14	49	15	40	It is not clear whether the objective of this section is to highlight the relationship of climatic factors and malaria or to summarise the studies undertaken on assessing the impacts of climate variability/change on malaria? (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
484	11	14	50	0	0	Not sure corrrect, "VBD's are perhaps the most well-studied of diseases" what about heat wave mortality, or waterborne diseases, or climate and air pollution? Suggest deleting or substantiating. (UNITED STATES OF AMERICA)
485	11	14	52	14	52	reference of Dhiman et al 2011 (Dhiman, RC, Chavan,L.,Pant, M and Pahwa, S 2011 National and Regional Impacts of Climate Change on Malaria by 2030 Curr Sci.101(3) : 372-383) may added after Wu et al 2009) (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
486	11	15	0	0	0	Section 11.5.1.1: Malaria - this section is unbalanced with no reference to studies on malaria in south and southeast Asian countries which are prone to malaria. (Reference: Malaria in South Asia, by R. Akhtar, Dutt, A.K. and V. Wadhwa, Springer, 2010 (AKHTAR, RAIS, ALIGARH MUSLIM UNIVERSITY)
487	11	15	0	0	0	Section 11.5.12: Dengue - researches on southeast asian and east asian countries including Taiwan may also be included. (AKHTAR, RAIS, ALIGARH MUSLIM UNIVERSITY)

#	Ch	From Page	From Line	To Page	To Line	Comment
488	11	15	5	15	40	Recognizing that there is ongoing debate within the health-climate community, an advance since AR4 is that for the first time high quality daily climate data for rainfall and temperature has been obtained from the East African study site common to many of the previous papers. The data set (1 January 1979 to 31 December 2009) of quality controlled daily observations (> 97% complete) of maximum, minimum and mean temperature were used in the analysis of trends at Kericho meteorological station. In particular the data has been cleaned according to international meteorological standards by qualified experts in meteorological data (Sam Waweru, Kenya and Brad Lyon, New York). The paper by Omumbo provides considerable detail on these data, how they have been quality controlled and makes them available at the aggregated monthly scale to the public while providing statistical analysis indicating significant evidence of warming of the time period analysed. The reference to the 1950s is not correct - as indicated above the data are obtained from 1979. Particularly relevant to the IPCC is that the authors were able to demonstrate the strong correlation be local minimum temperature at this site and global sea and landsurface temperatures (including ENSO). Omumbo, JA., Lyon, B., Waweru, S.M. Connor, SJ., and Thomson, M.C. (2011) Raised temperatures over the Kericho tea estates: revisiting the climate in the East African highlands malaria debate Malaria Journal Malaria Journal 2011, 10:12 doi:10.1186/1475-2875- 10-12 In this paper Omumbo et al., also analyse the widely used UEA-CRU data and caution potential user of this data along the lines which were first outlined by the data authors in the database documentation and later by one of the data authors - Mike Hulme i- n: Patz, J., M. Hulme, C. Rosenzweig, T. Mitchell, R. Goldberg, A. Githeko, S. Lele, A. McMichael and D. Le Sueur (2002). "Climate change: Regional warming and malaria resurgence." Nature(Feb 21: 415 (6874)): 905-909;In a separate regional study by Christy et al., they examine minimum and maximum station data for a range of stations in East Africa (including Kenya with data between 1946-2004 and observes warming trends in minimum temperature. Cite Christy JR, Norris WB, McNider RT: Surface Temperature Variations in East Africa and Possible Causes. Journal of Climate 2009, 22:3342-3356. Note that on page 15 line 15 "Ò it says malaria relationship to temperature appears to be is non-linear "Ò this should be IS non-linear. Stern is not a relevant reference for this section "Ò line 28 as his comments refer to the analysis used rather than the underlying observational data. Stern is appropriate cited in the section line 34 indicating a decline in malaria but the

#	Ch	From Page	From Line	To Page	To Line	Comment
488.2	11	15	5	15	40	rather than the underlying observational data. Stern is appropriate cited in the section line 34 indicating a decline in malaria but the timing of this decline should be stated in the text. Unfortunately the reference by Chaves and Koenraadt is not informed by an expert climate analysis of warming in the region. 11.5.1.1 Malaria: Page 15, Lines 12-35 Recognizing that there is ongoing debate within the health-climate community, malaria in the East African Highlands. The authors should consider minimizing, or eliminating and replacing this as the primary example in the document text. The controversy over this work does not serve the discussion well in reviewing the best methodology to quantifying the significance of any association, or in establishing the relative importance of climatic factors; and is therefore is not generally informative to policy making or developing a research agenda. The authors should also consider using a different case study or a published meta-analysis from some of the publications appearing since this section was drafted. There is also evidence suggesting that malarial mosquitoes do not necessarily have increased vectorial competency at elevated temperatures. Although this work uses the mouse / Plasmodium yoelii / Anopheles stephensi model, it is a testable system for showing immunological competence in the vector (Paaijamans et al., 2012). Malaria has been reported above 40oC in Gujarat and Rajasthan (Singh & Dhiman, 2012). It is also known that Plasmodium vivax was a significant factor in Finland so discussion of a limiting isotherm is likely to cause uncertainty. This reviewer suggests that temperature limits of vector-borne diseases be clearly be placed in context of transmission intensity and not described in absolute terms. Paaijmans KP, Blanford S, Chan BH, Thomas MB. Warmer temperatures reduce the vectorial capacity of malaria mosquitoes. Biol Lett. 2012 Jun 23;8(3):465-8. doi: 10.1098/rsbl.2011.1075. Epub 2011 Dec 21. http://rsbl.royalsocietypublishing.org/content/8/3/465.full.pdf+html Singh PK, Dhiman RC. Climate change and human health: Indian context. J Vector Borne Dis. 2012 Jun;49(2):55-60. Please see: http://www.mrcindia.org/journal/issues/492055.pdf (UNITED STATES OF AMERICA)
489	11	15	7	15	8	Add one additional species; Plasmodium knowlesi? (Lunde, Torleif Markussen, University of Bergen)
490	11	15	7	15	8	Taxonomic details need to be in italics. (Burt, Peter, University of Greenwich)
491	11	15	8	15	10	It is not adequate to quote only WHO estimates on malaria episodes and deaths because IHME estimates are 1.2 Mio. deaths per year. (Murray, C, et al., Global malaria mortality between 1980 and 2010: a systematic analysis, The Lancet, Vol. 379 No. 9814 pp 413-431) (Zacher, Winfried, Germanwatch)
492	11	15	11	15	11	I suggest the text is changed from 20 years to 60 years. Control efforts have lasted for 100 years, with particular success the last 60 years. (Lunde, Torleif Markussen, University of Bergen)
493	11	15	16	15	17	Text does not express Paaijmane et al.'s findings correctly. They found that, relative to constant-temperature scenarios, the fluctuation of temperature between day and night enhances malaria development when the mean temperature is near the minimum for malaria development, but inhibits malaria development when the mean temperature is near the maximum for malaria development. (Parker, David, Met Office Hadley Centre)
494	11	15	16	15	17	This is a complicated concept and needs to be stated more clearly. The reference quoted states that increased variations of mean temperature near the maximum temperature at which transmission occurs reduce transmission, while increased variations of mean daily temperature near the minimum temperature at which transmission occurs increase transmission. THis is not what the text says. (UNITED STATES OF AMERICA)
495	11	15	18	15	18	Second 'Anopheles' can be abbreviated to 'A' (taxonomic style). (Burt, Peter, University of Greenwich)
496	11	15	22	0	0	Title of Zhang et al 2012 suggests that it is not a malaria paper. (Parker, David, Met Office Hadley Centre)
497	11	15	22	15	22	It may have the citation error on Reference "Zhang et al., 2012" (Tan, Jianguo, Shanghai Meteorological Institute)

#	Ch	From Page	From Line	To Page	To Line	Comment
498	11	15	24	15	35	This paragraph does not take into account the concept of the Paajimans reference. It should point out the temperatures in the Eastern Highlands are near the minimum temperature of transmission. (UNITED STATES OF AMERICA)
499	11	15	28	15	28	Does the statement "have confirmed increasing temperatures since the 1950s" mean temperatures associated with increases in malaria transmission? (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
500	11	15	28	15	28	Delete 'time'. The use of the word here is tautologous, as 'time' is a 'period'. (Burt, Peter, University of Greenwich)
501	11	15	28	15	30	Modest temperature changes might not only increase the potential for malaria transmission, but also decrease the potential. 1) Lunde, Torleif Markussen, Bayoh, Mohamed Nabie, and Lindtjørn, Bernt: How malaria models relate temperature to malaria transmission., Parasit Vectors 6(1), 20, 2013 2) Mordecai, Erin A, Paaijmans, Krijn P, Johnson, Leah R, Balzer, Christian, Ben-Horin, Tal, de Moor, Emily, McNally, Amy, Pawar, Samraat, Ryan, Sadie J, Smith, Thomas C, Lafferty, Kevin D, and Thrall, Peter: Optimal temperature for malaria transmission is dramatically lower than previously predicted., Ecol Lett, 2013 (Lunde, Torleif Markussen, University of Bergen)
502	11	15	35	15	35	'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
503	11	15	38	15	38	Casual usage of "likely" should be avoided, as it is reserved likelihood term. (Mach, Katharine, IPCC WGII TSU)
504	11	15	38	15	40	Even if the "proportion of the world's population affected by the disease has been reduced" it is necessary to add that the Burden of disease is high - and may actually be on the increase again. (See: WHO, World Malaria Report 2012: "The enourmous progress (in malaria control) achieved appears to have slowed recently. International funding for malaria control has levelled off ...") Due to global warming 90 Mio. more people worldwide may be exposed to Malaria (not counting the additional 390 Mio. resulting from population increase) by 2030. (Hay, S. I., A. J. Tatem, C. A. Guerra, and R. W. Snow. 2006. Population at Malaria Risk in Africa: 2005, 2015, and 2030. London: Centre for Geographic Medicine, KEMRI/Welcome Trust Collaborative Programme, University of Oxford.) The decrease of Malaria as percentage of GBD from 4.03 % in 2005 to 3.33 in 2010 may well be due to improved control hiding the increasing effects of climate change. Yet compared to 1990 it has increased from 2.8 % to 3.3 % of all DALYs. (See Murray in the comment to p 15 line 8) (Zacher, Winfried, Germanwatch)
505	11	15	38	15	40	This statement needs a reference and isn't clear as written. Where has transmission been facilitated? How has P vivax been controlled in the face of facilitated transmission? (UNITED STATES OF AMERICA)
506	11	15	45	15	47	Is there a reference for the first three sentences in this section? Statements are not necessarily considered common knowledge, and later citations appear specific to other statements. (UNITED STATES OF AMERICA)
507	11	15	45	15	47	Possibly also refer to the findings of Hales S et al. (2002) Potential effect of population and climate changes on global distribution of dengue fever: an empirical model. Lancet, published online on 6 August 2002. (available at: http://image.thelancet.com/extras/01art11175web.pdf) (Matthies, Eva Franziska, Consultant)
508	11	15	45	16	8	It might worthwhile to reference the Singapore dengue situation even with aggressive interventions and vector control strategies, dengue is not under control. (Lewis, Nancy Davis, East-West Center)
509	11	15	46	15	46	Reference required. (Burt, Peter, University of Greenwich)
510	11	15	53	15	53	Second 'Aedes' can be adbbrecvaited to 'Ae'. (Burt, Peter, University of Greenwich)
511	11	15	53	16	1	A proper argumentation for the statement is lacking. Recent cases in the Madeira Islands (Portugal, Europe) expand the on the spread of Aedes aegypti in areas where it was not found before. (NETHERLANDS)
512	11	15	54	0	0	I suggest including a note that human influence on the availability of breeding sites will mediate the relationship between climate conditions and dengue fever. This is a factor in why there are not operational climate-based early warning systems for dengue to date. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
513	11	16	1	16	1	Change 'Aedes' to 'Ae'. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
514	11	16	1	16	8	Theses studies taken as a whole do not provide a clear signal as to the relationship between climate-related parameters and dengue. Perhaps rather than giving each individual study specific mention (the study from Bangladesh is particularly hard to draw conclusions from, given varying lags and positive and negative effects of low river levels) this section could be shortened with a single sentence and the various references. (UNITED STATES OF AMERICA)
515	11	16	12	16	41	Box 11-3. Case Study Dengue Fever This Box could be structured to begin with evidence of a climatic association, global spread & burden of disease, and adaptation strategies that involve education and behavior. (UNITED STATES OF AMERICA)
516	11	16	14	16	20	Comments made here are for Chapter 11 authors' consideration. Specific data and examples are commented on below and are taken from the attached supprting document: Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry. See pages 5-8, section: II. A Vector borne Diseases in Guatemala, Mexico, and the US /Mexico Border. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
517	11	16	14	16	20	suggest adding: Thirty year climate times scales are a challenge to match with precise epidemiological projections based on future warming scenarios , is the recent past ans current migratory effect of indigenous from Guatemala and Southern Mexico is concurrent with an expanded zone for vector borne and infectious diseases which both produced increases in incidence as transmigration of indigenous populations relocates indigenous in the NW Mexico and SW US regions where they remain largely unaddressed by extant health systems. Longer epidemological periods of study are needed, however, epidemic dengue occurred in Petén, Guatemala (30% of national territory) in 2008 and in 2009. Peten is located across the Usumacinta river from Chiapas, Mexico. In Peten (30% of national territory) two health districts reported higher incidences of dengue, as did the states of Izabal, Chiquimula, Escuintla, Zacapa, Quetzaltenango, Santa Rosa in 2008. In 2009, Zacapa, Chiquimula and Escuintla, in addition to the Petén districts, remained medium to high risk areas for hemorrhagic dengue. In Petén, Izabal, and Chiquimula, the already high incidence rate of 14.65-155.25 per 100,000 in 2008 increased to 50.22 to 648.05 per 100,000 for 2009. The percentage of indigenous in Petén is 23%, in Izabal it 23% in Chiquimula 35%, Santa Rosa 26%, Quetzaltenango 61%, Zacapa 3%, and Escuintla, 10%. Petén and western Izabal are inhabited by Ke'ckhi maya and in Chiquimula live the Chorti maya. Concurrent with the outbreak of dengue, Guatemala experienced crop failure in eastern provinces where corn stocks dried up in a drought that necessitated importation of food aid from the World Food Program and USAID. In Sonora, Mexico in 2008 outbreaks on DF and HDF followed Hurricane Julio infecting five people in coastal Guaymas (a no- indigenous city) and four in inland Cajeme (indigenous Yaqui predominantly city) and four in Navajoa (a Mayo indigenous community) where three cases originated in Yucatan, and one from a traditional indigenous Mayo community. In addition, 3 cases in Hermosillo of which two cases were of Yucatán and Veracruz origins, and four in Navajoa (a predominately indigenous Mayo city) , three of which also originated in the Yucatan, and a single case from Chinipas, Chihuahua (an indigenous community on the western edge of the adjacent Northern Mexican State- Chihuahua. The sub tropical shift projected with increased warming has begun toward the arid desertic area of NW Mexioc and SW United States. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
518	11	16	14	16	20	[Continued] The lack of access to state health insurance (undocumented migrants are prohibited from state health insurance in Arizona), and Seguro Popular, which lacks mobility for Mexican emigrants across state lines, exacerbates their health status, often putting them at further risk due to undiagnosed and untreated vector borne and infectious diseases. Only 29% of Mexican indigenous have public health insurance coverage in Mexico. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)

#	Ch	From Page	From Line	To Page	To Line	Comment
519	11	16	14	16	20	[continued] In Mexico, as elsewhere, the vector for the disease of dengue and hemmoragic dengue fever is the mosquito Aedes aegyptie. From 1990-2008 when tropical cyclones increased from an average of 3.5 to 6 per year, the frequency of infection from vector borne diseases increased. Mexico experienced 2.5 times the number of confirmed cases of dengue fever and hemorrhagic dengue fever during the period 1990-2009. States reporting the most cases in 2009-2010, were Pacific coast states of Nayarit, Guerrero, and Oaxaca, Jalisco, and Michoacán and Atlantic / Caribbean coast states of Quintana Roo, Yucatan, Tabasco, Colima, and Nuevo Leon. The southern states of Yucatan, Guerrero, Oaxaca, Michoacán, and Quintana Roo are disproportionately populated by indigenous people compared to other states in Mexico. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
520	11	16	14	16	20	[Continued] Four distinct serotypes were reported from 1996-1999 and again from 2005-2009, up from two to three serotypes in the intervening years. The number of probable but unconfirmed cases was up to 5 times greater by the second quarter in 2009 compared to either 1990 or to 2000. Probable cases are those identified by symptomology, whereas confirmed cases, are lab tested. The trend in the rest of the Americas relating to confirmed cases was an increase of approximately 3.5 times higher compared to a base line of 1990. In Arizona, the state bordering Sonora, Mexico along the US- Mexico border, the number of cases of confirmed dengue fever increased from < 1 case in 1998 to an average of 8 cases in 2012. The state of Arizona identifies the cases as “imported”, presumably attributing the origin to immigrants entering the state from the south. Given their reported case fatality rates increased from 20% to 50% for untreated or mistreated cases for dengue hemorrhagic fever, but <5 % for those were properly treated, the legal status of immigrants and their ethnic identity present tangible incentives to avoid hospitalization for fear of deportation[2]. [2] Epidemiology, Clinical Aspects, And Diagnosis Of the Dengue Virus, Orion McCotter, Border Infectious Disease Surveillance Epidemiologist Arizona Department of Health Services; Kate Fitzpatrick, Serology Virology Section Supervisor, Arizona State Public Health Laboratory, April 6, 2012. http://www.asclsregionx.com/Pres/Pres_15.pdf accessed 20 may, 2013.) (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
521	11	16	14	16	20	[Continued] The human migration from areas in Southern Mexico and Central Mexico, as well as from Guatemala, since the mid- 1980’s though as previously stated is not directly attributed to climate change, has come about due to increased displacement of rural indigenous from those areas. Indigenous migration through areas of un mitigated mosquito infestation and low public health investment, and from indigenous origin communities however, puts indigenous at greater risk for climate related vector borne diseases such as dengue and malaria, as well as infectious diseases, for example tuberculosis, because of the confluence of the warming conditions that have increased sea level rise and tropical storms which increase mosquito growth in coastal areas. When added to the conditions of crowding and migration in communities of rural migrants, especially in agricultural work in northwestern Mexico states and Southwestern US states such as Arizona, the combination of climate change and local conditions have detrimental impacts on the health and well-being of indigenous.[3] [3] ibid (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
522	11	16	14	16	20	[1] DENGUE Y EL CAMBIO CLIMATICO , Secretaría de Salud, (Subsecretaría de Prevención Y Promoción De La Salud; Centro Nacional De Programas Preventivos Y Control De Enfermedades, dirección General De Epidemiología; Instituto De Diagnóstico Y Referencia Epidemiológicos). http://www.cpspsonora.com/PDF/Cambioclimatico.pdf , accessed 20 may, 2012 (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
523	11	16	15	16	16	New research suggesting three times this number of cases annually. Bhatt et al. Nature (2013) doi:10.1038/nature12060 (UNITED STATES OF AMERICA)
524	11	16	16	0	0	You state: "..there occur about 50-100 million cases.." Bhatt, S, et al., The global distribution and burden of dengue, Nature, April 2013, claim that there are about 400 Mio. cases of dengue infections per year. (Zacher, Winfried, Germanwatch)

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525	11	16	17	16	20	"Prior to 2006, no consistent patterns... and Ae. aegypti populations within the Americas." In 2004 a three year pattern was observed in the spatial and seasonal distribution of Ae. aegypti in Buenos Aires. Although in Spanish and with figure digitalization problems, it has an abstract in English). Carbajo A.E., Gomez S, Curto SI y Schweigmann NJ. (2004) Variación espacio-temporal del riesgo de transmisión de dengue en la Ciudad de Bs. As. Medicina de Bs. As., 64: 231-234. http://www.medicinabuenosaires.com/revistas/vol64-04/3/VARIACION%20ESPACIO-TEMPORAL%20DEL%20RIESGO%20DE%20TRANSMISION.pdf (Carbajo, Anibal Eduardo, Universidad Nacional de San Martín)
526	11	16	20	16	20	More references like " Chakravarti, A and R Kumaria 2005. Eco-epidemiological analysis of dengue infection during an outbreak of dengue fever, India Virology Journal , 2:32 doi:10.1186/1743-422X-2-3 " may be incorporated which highlighted that rain, temperature and relative humidity as the major and important climatic factors for dengue outbreak. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
527	11	16	20	16	24	"Dengue fever is an imported disease in Europe and originating from imported cases, two cases in France and 17 cases in Croatia were reported in 2010. (Gjenero Margan et al., 2011; La Ruche et al., 2010) In Madeira Island, Portugal 2,000 cases declared from October 2012 to January 2013, and additional 78 cases reported among European travellers returning from the island. (Sousa et al., 2012; ECDC, 2013) Reference: Gjenero-Margan I, Aleraj B, Krajcar D, Lesnikar V, Klobucar A, Pem-Novosel I, et al. Autochthonous dengue fever in Croatia, August-September 2010. Euro Surveill. 2011; 16(9) La Ruche G, Souares Y, Armengaud A, Peloux-Petiot F, Delaunay P, Despres P, et al. First two autochthonous dengue virus infections in metropolitan France, September 2010. Euro Surveill. 2010; 15(39) Sousa CA, Clairouin M, Seixas G, Viveiros B, Novo MT, Silva AC, et al. Ongoing outbreak of dengue type 1 in the Autonomous Region of Madeira, Portugal: preliminary report. Euro Surveillance. 2012; 17(49) ECDC. Update on autochthonous dengue cases in Madeira, Portugal. 2013." (Kendrovski, Vladimir, World Health Organization Regional Office for Europe)
528	11	16	22	16	22	Change 'Aedes' to 'Ae'. (Burt, Peter, University of Greenwich)
529	11	16	30	16	30	A' should be 'Ae'. (Burt, Peter, University of Greenwich)
530	11	16	33	16	33	For this statement, it would be preferable to specify which scenarios of climate change are meant. Additionally, it might be helpful to specify the relevant geographic scale for the statement, as well as considering cross-reference to working group 1. (Mach, Katharine, IPCC WGII TSU)
531	11	16	42	16	43	We suggest inserting other mosquito-borne infections here; chikungunya (from page 17 line 24), Japanese encephalitis, filariasis, and sandfly-borne leishmaniasis. There is an authoritative review of metadata from Chinese and English literature of malaria, dengue, and Japanese encephalitis (Bai et al. (2013)). It arguably makes more sense to keep this literature together because the paper speaks to multiple infectious diseases across a vast human, ecological, socio-economic, and geographical diversity that is somewhat responsive in terms of adaptation and mitigation strategy to a unified political entity. In addition, the key recommendation of awareness and education applies to multiple diseases. Bai L, Morton LC, Liu Q. Climate change and mosquito-borne diseases in China: a review. Global Health. 2013 Mar 9;9:10. doi: 10.1186/1744-8603-9-10. http://www.globalizationandhealth.com/content/pdf/1744-8603-9-10.pdf (UNITED STATES OF AMERICA)
532	11	16	46	16	46	The words "Lyme borreliosis(LB)" may be replaced by 'Lyme disease'. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
533	11	16	46	16	53	The review of Lyme boreliosis in Europe should be mentioned: Lindgren E., Jaenson T., 2006, Lyme borreliosis in Europe: influences of climate and climate change, epidemiology, ecology and adaptation measures. WHO Regional Office for Europe, Copenhagen, Denmark. (POLAND)

#	Ch	From Page	From Line	To Page	To Line	Comment
534	11	16	51	17	4	Suggest to include also the references: Lindgren, E, Andersson, Y, Suk, JE, Sudre, B, Semenza, JC (2012). Monitoring EU emerging infectious disease risk due to climate change. Science, Vol. 336, pp. 418 – 419 (available at: http://211.144.68.84:9998/91keshi/Public/File/41/336-6080/pdf/418.full.pdf) identifying Lyme borreliosis as future high risk with strong link to climate change; and Jaensen, TGT, Jaenson, DGE, Eisen, L, Petersson, E, Lindgren, E (2012). Changes in the geographical distribution and abundance of the tick Ixodes ricinus during the past 30 years in Sweden. Parasites & Vectors, 5, 8, 15 pages (available at: http://www.parasitesandvectors.com/content/5/1/8) showing changes in geographic tick distribution in Seden from the 1980s to 2008. (Matthies, Eva Franziska, Consultant)
535	11	17	1	17	2	Was there an observed climate change too over that region and period? (Stone, Dáithí, University of Cape Town)
536	11	17	1	17	4	Expansion of Lyme boreliosis in Europe is also observed and reported. (POLAND)
537	11	17	9	0	0	the word 'and' may be replaced by 'rather' (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
538	11	17	12	17	0	Lyme borreliosis may be replaced by Lyme disease (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
539	11	17	17	17	25	11.5.1.4. Other Vector-Borne Diseases Chapter missing about sand flies as a vector for leishmania: Lit.: Depaquit, J., Grandadam, M., Fouque, F., Andry, P.E., Peyrefitte, C. (2010): Arthropod-borne viruses transmitted by Phlebotomine sand flies in Europe: a review. Eurosurveillance 15, 19507. Chappuis, F., Sundar, S., Hailu, A., Ghalib, H., Rijal, S., Peeling, R.W., Alvar, J., Boelaert, M. (2007): Visceral leishmaniasis: what are the needs for diagnosis, treatment and control? Nature Reviews Microbiology 5, 7 – 16. (GERMANY)
540	11	17	17	17	25	This section needs development as recent cases and research on other vector-borne diseases are not discussed. There is no argumentation on the impacts of such diseases. Spread of vector-bourne diseases to new areas and its impacts should have a bigger discussion. (NETHERLANDS)
541	11	17	17	17	25	Suggest indicating that Hantavirus is rodent-borne and also change the section header here to “Other vector- and rodent-borne diseases” (CANADA)
542	11	17	17	17	25	Are any of these seasonal correlations thought to be plausible indicators of mechanisms for drivers of long-term climate-related trends? (Stone, Dáithí, University of Cape Town)
543	11	17	19	17	22	The association of Puumala hemorrhagic fever with renal syndrome and snowpack may be worthy of mention (Pettersson, 2008). Pettersson L, Boman J, Juto P, Evander M, Ahlm C. Outbreak of Puumala virus infection, Sweden. Emerg Infect Dis. 2008 May;14(5):808-10. doi: 10.3201/eid1405.071124. http://wwwnc.cdc.gov/eid/article/14/5/pdfs/07-1124.pdf (UNITED STATES OF AMERICA)
544	11	17	22	17	25	I fully agree on the fact, authors highlited the link between diseases outbreaks and seasonal and inter-annual variabilitity in climate… References also are OK but the intra-seasonal variability is also a key component of this issue. Please refer to Caminade et al (2011), in Atmospheric Science Letter 12(1), 96-103 with regards to RVF. (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
545	11	17	23	0	0	Please consider adding the following references: 1. Monaghan, Andrew J., Katherine MacMillan, Sean M. Moore, Paul S. Mead, Mary H. Hayden, Rebecca J. Eisen, 2012: A Regional Climatography of West Nile, Uganda, to Support Human Plague Modeling. J. Appl. Meteor. Climatol., 51, 1201‰ÛÒ1221. doi: http://dx.doi.org/10.1175/JAMC-D-11-0195.1 2. MacMillan, K., A.J. Monaghan, T. Apangu, K.S. Griffith, P.S. Mead, S. Acayo, R. Acidri, S.M. Moore, J.T. Mpanga, R.E. Enscore, K.L. Gage, and R.J. Eisen, 2012: Climate predictors of the spatial distribution of human plague cases in the West Nile region of Uganda. Am. J. Trop. Med. Hyg., accepted for publication. (UNITED STATES OF AMERICA)
546	11	17	24	17	25	Section 11.5.1.4 (Other Vector-Borne Diseases) This section is very brief for the number of diseases it covers. Suggest moving discussion of Chikungunya to follow malaria and dengue as a pool of mosquito-borne diseases. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
547	11	17	24	17	25	Were there papers that addressed potential spread of Chikungunya based on climate variability versus international travel? If so, how has climate affect this disease. (UNITED STATES OF AMERICA)
548	11	17	24	17	25	The sentence referring to Chikungunya fever mentions that this is sensitive to climate but does not explain in what way, also the link between climate sensitivity of the disease and its recent appearance in Asia and parts of Europe is alluded but not clearly stated or documented by evidence and should be clarified. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
549	11	17	26	17	27	We suggest a small new section : 11.5.1.5. ‰ÛÏCo-Infections & Co-Morbidities‰Ûncluding multiple co-infections such as introduction of climate-related infections to populations with increased susceptibility. One example would be uncertainties over the risks of malaria in areas endemic for helminthes (Noland et al. 2007). Since malaria and helminthes involve water, it argues for a disproportionately beneficial impact on mitigation efforts. Noland GS, Graczyk TK, Fried B, Kumar N. Enhanced malaria parasite transmission from helminth co-infected mice. Am J Trop Med Hyg. 2007 Jun;76(6):1052-6. http://www.ajtmh.org/content/76/6/1052.full.pdf+html (UNITED STATES OF AMERICA)
550	11	17	28	0	0	Section 11.5.1.5: Please consider grouping these projected impacts with the previous discussions of each disease type. (Mastrandrea, Michael, IPCC WGII TSU)
551	11	17	30	17	30	'et al' should be in italics. (Burt, Peter, University of Greenwich)
552	11	17	31	17	31	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
553	11	17	33	0	0	You write: "… assuming …. equitable economic growth…" There is hardly any low and middle income country (LMIC) nor hardly any low income country (LIC) where during the last 30 years economic growth has been "equitable". (cp. UNDP Human Development Index especially Gini-Coefficient). So why quote calculations for an extremely unlikely scenario in future? Please leave it out! (Zacher, Winfried, Germanwatch)
554	11	17	38	17	41	Section 11.5.1.: Figure 11-5 is not clear whether the first diagram (d) is considered as an earlier period and diagram (a) is later or the opposite, please I appreciate to clarify it more either in the comment on the figure or by correction of the symbol (d) to become (a) and (a) to change to be (b). (Saad-Hussein, Amal, National Research Center)
555	11	17	38	17	41	Figure 11-5. The main message to be drawn from this figure is not clear neither in the text or the figure caption: what is the net effect? (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
556	11	17	43	17	43	Where "no studies" are mentioned here, is the author team referring only to publications available after 2006 or also to publications prior to 2006? (Mach, Katharine, IPCC WGII TSU)
557	11	17	43	17	45	The statement is presented without any references and is presented with insufficiently founded generalization. Current and future economic and financial changes and impacts in Southern Europe should be included in the equation as they may influence and even promote breakdown of health services, as stated (i.e. Greece). (NETHERLANDS)
558	11	17	47	17	47	At least two other studies were found to address models of future risk of dengue under climate change: Beebe NW, Cooper RD, Mottram P, Sweeney AW (2009) Australia's Dengue Risk Driven by Human Adaptation to Climate Change. PLoS Negl Trop Dis 3(5): e429. doi:10.1371/journal.pntd.0000429; and Climate change and vector-borne diseases: a regional analysis, Andrew K. Githeko, Steve W. Lindsay, Ulisses E. Confalonieri & Jonathan A. Patz4 http://www.who.int/bulletin/archives/78(9)1136.pdf (NETHERLANDS)
559	11	17	47	17	47	Does this statement also indicate that no literature prior to 2006 was available on this topic? It would be helpful to specify this. (Mach, Katharine, IPCC WGII TSU)
560	11	17	47	17	47	In line with previous comments, what about literature prior to 2006, or relevant conclusions from AR4? The discussion of this one newer study should build on prior knowledge. (Mastrandrea, Michael, IPCC WGII TSU)
561	11	17	50	17	51	The baseline for this statement implied by "expected otherwise" should be indicated more precisely--as compared to a no climate change scenario? (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
562	11	17	51	17	51	If this is a negative value, fine, otherwise I suggest replacing the hyphen with a comma, to minimise confusion. (Burt, Peter, University of Greenwich)
563	11	17	51	17	53	See my comment for Page 15 and 16, lines 45 -8. Despite high GDP, dengue is not completely controlled in Singapore. (Lewis, Nancy Davis, East-West Center)
564	11	18	0	0	0	Predictions of an increase in diarrhoeal infections (11.5.2.3) has been based predominantly on the paper by Kolstad & Johannson (6). This paper, and others, have used seasonal relationships between temperature and infections based on linear regression models to predict future disease rates of diarrhoea. This approach seems a simplistic and potentially suspect way of looking at future trends in diarrhoeal disease over long time periods (the authors report predictions up to 2099!). In addition the reported negative correlation of seasonal temperatures with rotavirus infections, together with international approaches to vaccination for rotavirus, suggest that there could be significant reductions in diarrhoeal diseases in the future. I think there is evidence to suggest that Vibrio infections, especially V. alginolyticus, will increase with predicted climate change scenarios [11.5.2.1] but Salmonella should continue to decline in developed countries with appropriate vaccination of chickens and pigs. The effectiveness of interventions for Campylobacter has had a poor record, but the impact that intervention in chickens has had on human cases in New Zealand suggests interventions in other countries may also have some impact on this disease. I would be very surprised if we do not have an effective cross strain vaccine for Norovirus within the next ten years. It is therefore difficult to see from the data presented how the increased risk of food- and water-borne diseases prediction can be considered [high confidence], although I could see a scenario with large-scale famine and drought where the increase of serious diarrhoeal infections could occur. This is an area where further technical work on methods for estimating could prove useful. (Nichols, Gordon, European Centre for Disease Prevention and Control)
565	11	18	4	18	5	Was this projection for a specific timeframe? (Mastrandrea, Michael, IPCC WGII TSU)
566	11	18	8	0	0	There is no mention of bluetongue disease moving northward in Europe due to climate change. Ref: Purse, Mellow, Rogers, et. al. 2005. (UNITED STATES OF AMERICA)
567	11	18	10	18	18	11.5.2. Food and Water-Borne Infections Chapter missing about plankton- or algae blooms Lit.: WHO (2004): Algae and cyanobacteria in fresh water. In: Guidelines for Drinking-water Quality, 3rd ed., vol.1, Geneva. (GERMANY)
568	11	18	10	18	18	http://www.uaf.edu/files/ces/aiswg/news/NEJM-oysters.pdf McLaughlin et al showed a strong link between clinical V. parahaemolyticus cases and sea surface temperature. This excellent paper can give high confidence of a climate challenge to the aquaculture industry that provides vital protein to hundreds of millions of persons globally. This is, in this reviewer's mind, a more significant issue than seasonality, since it will require dramatic and expensive changes in practices of aquaculture, pre-harvest, post-harvest, transport, sale, and preparation of a substantial part of the food supply, particularly in the densely populated coastal SE Asia, which of course is prone to intensified oceanic, atmospheric, and hydrological activity. This reviewer perceived a very low level of concern in the section about this phenomenon. FAO and FDA have pursued significant efforts in managing V. parahaemolyticus, but V. vulnificus could pose a much more dramatic hazard. (UNITED STATES OF AMERICA)
569	11	18	11	18	18	Please add a sentence to explain concept of zoonotic reservoir in marine or freshwater and potential human health risk related to changes in exposure as well as changes in disease range. Include the use of marine species as part of early warning and detection of risk. (UNITED STATES OF AMERICA)
570	11	18	12	18	18	The statements may be supported by references (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
571	11	18	12	18	18	A reference for the statement is not provided by the authors. (NETHERLANDS)
572	11	18	12	18	18	Biblio suggestion: ECDC 2012“Assessing the potential impacts of climate change on food- and waterborne diseases in Europe” (ITALY)

#	Ch	From Page	From Line	To Page	To Line	Comment
573	11	18	13	18	18	Well written section but references are needed. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
574	11	18	21	18	35	Section 11.5.2.1. Vibrio Page 18 lines 21-35 Predicting cholera seasons in endemic areas does not make a huge difference to the public health management of disease. Predicting epidemics is much more important, and can be done by attentive surveillance of population vulnerability, state of public health infrastructure, and transmission intensity of enteric infections or fecal coliforms in the community. The primary driver of cholera is robust fecal-oral transmission. Climate is significant only in that it drives this transmission channel. For example, Florida and Texas have minimal levels of cholera, whereas the Himalayan regions do have cholera. The paragraph on cholera does not address the significane of climate change, specifically the intensification of the hydrological cycle, on the intensity of transmission of fecal-orally transmitted pathogensdue to flooding. Predicting cholera in Bangladesh is not a particularly useful exercise, it's predicting cholera in non-endemic areas that is crucial, and that is predicated on introduction of cases, and a robust fecal-oral transmission route. (UNITED STATES OF AMERICA)
575	11	18	22	18	35	"Additional key literature citations suggestedBanakar V, Constantin de Magny G, Jacobs J, Murtugudde R, Huq A, et al. (2011) Temporal and Spatial Variability in the Distribution of Vibrio vulnificus in the Chesapeake Bay: A Hindcast Study. EcoHealth 8: 456-467. http://link.springer.com/article/10.1007%2Fs10393-011-0736-4 Akanda AS, Jutla AS, Alam M, Constantin de Magny G, Siddique AK, Sack RB, et al. (2011). Hydroclimatic influences on seasonal and spatial cholera transmission cycles: Implications for public health intervention in the Bengal Delta. Water Resources Research 47:1-11. http://onlinelibrary.wiley.com/doi/10.1029/2010WR009914/abstract Constantin de Magny G, and Colwell RR (2009). Cholera and Climate: A Demonstrated Relationship. Trans Am Clin Climatol Assoc:pp. 1-18. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2744514/ Constantin de Magny G, Long W, Brown CW, Hood RR, Huq A, Murtugudde R, et al. (2010). Predicting the Distribution of Vibrio spp. in the Chesapeake Bay: A Vibrio cholerae Case Study. Ecohealth, DOI:10.1007/s10393-009-0273-6. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2880626/ Constantin de Magny G, Mozumder PK, Grim CJ, Hasan NA, Naser MN, Alam M, et al. (2011). Role of Zooplankton Diversity in Vibrio cholerae Population Dynamics and in the Incidence of Cholera in the Bangladesh Sundarbans. Applied and Environmental Microbiology 77:6125-6132. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3165371/ Constantin de Magny G, Murtugudde R, Sapiano MR, Nizam A, Brown CW, Busalacchi AJ, et al. (2008). From the Cover: Environmental signatures associated with cholera epidemics. Proc Natl Acad Sci U S A 105:17676-17681. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2584748/ Constantin de Magny G, Thiaw W, Kumar V, Manga NM, Diop BM, Gueye L, et al. (2012). Cholera outbreak in senegal in 2005: was climate a factor? PLoS One 7:e44577. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3432123/Constantin de Magny G, Cazelles B, and Guì©gan JF (2006). The cholera threat to humans in Ghana is influenced by both global and regional climatic variability. Ecohealth 3:223-231. http://link.springer.com/article/10.1007/s10393-006-0061-5 Constantin de Magny G, Guì©gan JF, Petit M, and Cazelles B (2007). Regional-scale climate-variability synchrony of cholera epidemics in West Africa. BMC Infect Dis 7:20. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1839095/ (UNITED STATES OF AMERICA)
576	11	18	23	18	23	'Vibrio' should be in italics, it is a genus name. (Burt, Peter, University of Greenwich)
577	11	18	23	18	35	This section could also usefully reference the Akanda et al 2001 paper in Water Resources Research (vol 47) which modelled impacts of future sea level rise and increased flooding on cholera incidence in the Bay of Bengal showing increased risks of epidemics (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
578	11	18	28	18	28	The word 'all' may be deleted (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
579	11	18	30	18	30	Is the robust relationship between temperature and disease positive? (Lewis, Nancy Davis, East-West Center)
580	11	18	32	28	33	What does "below threshold" mean? Below the "mean"? What kind of threshold? (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
581	11	18	34	18	34	"water-washed contamination" is odd language for waterborne diseases. This seems to refer to contaminated runoff from precipitation. "water-washed" also and more commonly pertains to diseases that are prevented by availability of clean water for washing human hands and faces. (UNITED STATES OF AMERICA)
582	11	18	38	19	25	Please include background on schistosomiasis to go with discussion in near-term future (UNITED STATES OF AMERICA)
583	11	18	38	19	25	Section 11.5.2.2. Enteric Bacteria and Viruses Page 18, Line 38 - Page 19 Line 25. Page 19: Line 10 --- See Liu et al. (2013) referring to bacterial enteric pathogen growth in leafy green vegetables under simulated climatic conditions. This reflects an immediate issue of concern for high-GDP per person countries, and a potential emerging issue for developing countries. An issue of potentially broader significance across temperate countries in management of Salmonella was raised by Grjibovski et al. (2012). This adds to historical studies of salmonella in the UK, showing that food-borne disease is a risk of temperature anomalies as well as precipitation. Viral diseases also show seasonality, but clearly do not replicate in the environment, and so are easier to study. The intensity of transmission of rotavirus, norovirus, poliovirus, and a plethora of other enteroviruses and coronaviruses make these agents significant in the climate change scenario. In addition, the deadliness of these agents shouldn't be underestimated; and more needs to be known (Fisman, 2012). The paragraph on rotavirus is not climate-related. This reviewer suggests concentrating on the public health consequenses of intensification of rotavirus transmission under intensified precipitation, flooding, and storm surges, especially if natural stressors and disasters interfere with vaccination programs. Returning to pre-vaccine fatality rates would qualify as a disaster. Liu C, Hofstra N, Franz E. Impacts of climate change on the microbial safety of pre-harvest leafy green vegetables as indicated by Escherichia coli O157 and Salmonella spp. Int J Food Microbiol. 2013 Mar 14;163(2-3):119-128. doi: 10.1016/j.ijfoodmicro.2013.02.026. [Epub ahead of print] http://www.sciencedirect.com/science/article/pii/S0168160513001359 Grjibovski AM, Bushueva V, Boltenkov VP, Buzinov RV, Degteva GN, Yurasova ED, Nurse J. Climate variations and salmonellosis in northwest Russia: a time-series analysis. Epidemiol Infect. 2012 Apr 4:1-8. [Epub ahead of print] http://journals.cambridge.org/download.php?file=%2FHYG%2FHYG141_02%2FS0950268812000544a.pdf&code=ff9d38f80a09ea4bd298f403f4d38dc7 Fisman D. Seasonality of viral infections: mechanisms and unknowns. Clin Microbiol Infect. 2012 Oct;18(10):946-54. doi: 10.1111/j.1469-0691.2012.03968.x. Epub 2012 Jul 20. http://onlinelibrary.wiley.com/doi/10.1111/j.1469-0691.2012.03968.x/pdf (UNITED STATES OF AMERICA)
584	11	18	38	19	25	We recommend adding a section on Harmful Algal Blooms, both freshwater and marine. Literature supports climate related impacts. Studies specifically run climate scenarios into the future and suggest a shift of two months in onset and duration of bloom times in Puget Sound, with implications for food production, consumption and recreational exposure. See suggested references: Feifel, KM, SK Moore, and RA Horner. 2012. An Alexandrium sp. cyst record from Sequim Bay, Washington State, USA, and its relation to past climate variability. J. Phycol. 48: 550‰ÛÒ558, doi: 10.1111/j.1529-8817.2012.01175.x Backer, LC, SK Moore. 2012. Harmful Algal Blooms: Future Threats in a Warmer World, p. 485-512. In A. E. Nemr [ed.], Environmental Pollution and its Relation to Climate Change. Nova Science Publishers, New York, United States of America. Moore, SK, NJ Mantua, and EP Salathì© Jr. 2011. Past trends and future scenarios for environmental conditions favoring the accumulation of paralytic shellfish toxins in Puget Sound shellfish. Harmful Algae 10: 521-529. Moore, SK, NJ Mantua, BM Hickey, and VL Trainer. 2010. The relative influences of El Nìl±o Southern Oscillation and Pacific Decadal Oscillation on paralytic shellfish toxin accumulation in Pacific Northwest shellfish. Limnol Oceanogr. 6: 2262-2274, doi: 2210.4319/lo.2010.2255.2266.2262. Marques, A, ML Nunes, SK Moore, MS Strom. 2010. Climate change and seafood safety: human health implications. Food Res Int 43: 1766‰ÛÒ1779 Moore, SK, NJ Mantua, VL Trainer, BM Hickey. 2009. Recent trends in paralytic shellfish toxins in Puget Sound, relationships to climate, and capacity for prediction of toxic events. Harmful Algae 8:463-477, doi:410.1016/j.hal.2008.1010.1003 (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
585	11	18	40	18	42	"however, with a few exceptions we do not know the cause"-- This sentence seems to refer to a limited number of studies, including Kolstad, that just modeled non-specific diarrheal illnesses versus temperature. Or perhaps it is confusing the epidemiologic study of diarrhea with the clinical reality that often specfic causes of diarrhea are not obtained? But there are numerous studies associating specific pathogens, both bacterial and viral, with weather parameters. This sentence should be removed or clarified. (UNITED STATES OF AMERICA)
586	11	18	40	19	25	conclusive statement whether diarrhea is climate sensitive disease is desired. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
587	11	18	44	18	44	Reference required. (Burt, Peter, University of Greenwich)
588	11	19	0	0	0	The prediction of increases in the area of China that is suitable for S. japonicum infection does not take in likely interventions in schistosomiasis by the Chinese government [11.5.2.3]. (Nichols, Gordon, European Centre for Disease Prevention and Control)
589	11	19	4	19	4	Reference style needs attention. (Burt, Peter, University of Greenwich)
590	11	19	14	19	15	It would seem clearest to acknowledge the overlap of this statement with page 18, line 51. (Mach, Katharine, IPCC WGII TSU)
591	11	19	15	19	17	Suggest connecting this sentence similar comments on lines 6-8 since they are related. (CANADA)
592	11	19	19	19	20	Can you add a place or region which these statistics pertain to (NETHERLANDS)
593	11	19	30	19	30	The name of the author is incorrect: Kolstad, not "Kolstand". (UNITED STATES OF AMERICA)
594	11	19	30	19	34	It would be preferable to specify the baseline for these projections in terms of the percentage increases provided. (Mach, Katharine, IPCC WGII TSU)
595	11	19	33	19	33	Missing word ('include'?) in sentence. (AUSTRALIA)
596	11	19	33	19	34	"This study did not ? projections..." This statement is confusing and incomplete. Should it perhaps read "did not include" or "did not perform"? (UNITED STATES OF AMERICA)
597	11	19	35	0	0	Missing one of few studies done in US using downscaled climate modeling and WBD risk estimate (e.g, between 50-120% increase in risk of combined sewage overflow (CSO) events for Chicago watersheds. Patz, Vavrus, Uejio, McLellan. Climate change and waterborne disease risk in the Great Lakes region of the U.S. Am J Preventive Med. 2008; 35(5):451--458. (UNITED STATES OF AMERICA)
598	11	19	36	19	38	It would be beneficial to specify the relevant scenarios could change for this projection. (Mach, Katharine, IPCC WGII TSU)
599	11	19	41	19	41	Insert space after 'schistosomiasis'. (Burt, Peter, University of Greenwich)
600	11	20	0	0	0	What about indoor air pollution? It is mentioned in 11.9 under co-benefits, but not in 11.5.3 under air quality. The smoke produced from cooking using firewood in domestic residences is a significant contributor to mortality, and one might imagine the risks from this could change with an altered climate, but I am unclear how. (Nichols, Gordon, European Centre for Disease Prevention and Control)
601	11	20	1	20	1	The section (11.5.3) focuses on air qualtiy problems that may be affected by climate change. I think the title should be made to reflect this more accurately. As it is now, one expects more information on wider air pollution aspects. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
602	11	20	1	21	2	Suggest mentioning the preliminary results of climate change on particulates and some of the uncertainties and difficulties in projecting these outcomes, for example Jacob and Winner (2009). (Landuyt, William, ExxonMobil Research and Engineering)
603	11	20	1	21	45	Health effects of PM 2.5 should be listed somewhere in this chapter. Especially because they are refered to in sub-chapter 11.5.3.4 (Near Term Future) (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))

#	Ch	From Page	From Line	To Page	To Line	Comment
604	11	20	1	22	44	Please replace WGI AR5 reference placeholders with proper cross-references to the WGI report and ensure consistency with latest WGI AR5 assessment. (Plattner, Gian-Kasper, IPCC WGI TSU)
605	11	20	3	20	3	Chapter details missing. (Burt, Peter, University of Greenwich)
606	11	20	3	20	3	Please refer to AR5 WGI Ch6. (Plattner, Gian-Kasper, IPCC WGI TSU)
607	11	20	3	20	6	I think the section will benefit from an introduction defining the concepts (i.e. separating the effects of air pollution in general, from those mediated through climate change and mentioning more clearly the two way interactions between climate change and air pollution). (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
608	11	20	5	20	5	Given that "fertilization" could sound like fertilizer here given the mention of agriculture, clarity should be ensured for the reader. (Mach, Katharine, IPCC WGII TSU)
609	11	20	9	20	51	Box 11-4: is too long and confusing. Please shorten it and clarify its relationship with climate or eliminate. (UNITED STATES OF AMERICA)
610	11	20	14	20	14	Delete inner brackets. (Burt, Peter, University of Greenwich)
611	11	20	15	20	18	The timeframe for this observed outcome should be specified. (Mach, Katharine, IPCC WGII TSU)
612	11	20	19	20	19	Please define DALY. (AUSTRALIA)
613	11	20	19	20	19	DALY - Disability Adjusted Life Years. The term is used on page 5, but not linked to the acronym later used in box insert on page 20. (UNITED STATES OF AMERICA)
614	11	20	19	20	19	Define DALY (UNITED STATES OF AMERICA)
615	11	20	19	20	20	Abbreviation DALY needs expanding and explaining. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
616	11	20	19	20	34	I don’t know what DALY means. (Burt, Peter, University of Greenwich)
617	11	20	29	20	29	For parity with other Chapters, please change 'ch' to 'Chapter'. (Burt, Peter, University of Greenwich)
618	11	20	29	20	29	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
619	11	20	33	20	34	The wording here should be considered to ensure a policy neutral statement. (Mach, Katharine, IPCC WGII TSU)
620	11	20	34	20	34	'per' should be in italics. (Burt, Peter, University of Greenwich)
621	11	20	39	20	43	Although this is a big problem that needs to be tackled, there needs to be a further discussions and argumentation using available data to consubstantiate the argument. No references are presented. (NETHERLANDS)
622	11	20	45	20	45	The word choice here of "twin goals" could potentially be made to reverberate more with relevant terminology and report--in terms of trade-offs, synergies, and co-benefits for example. Additionally, it would be preferable to avoid "unfortunately" as it could be interpreted as overly editorializing. (Mach, Katharine, IPCC WGII TSU)
623	11	20	45	21	2	The unspecified references to WGI here must be replaced by specific references to WGI findings and chapter sections. (Mastrandrea, Michael, IPCC WGII TSU)
624	11	20	47	20	47	Ch x (Stouffer, Ronald, Geophysical Fluid Dynamics Laboratory/NOAA)
625	11	20	47	20	47	For parity with other Chapters, please change 'ch' to 'Chapter'. (Burt, Peter, University of Greenwich)
626	11	20	47	20	47	Please provide a specific reference to WGI, e.g. WGI Ch6. (Plattner, Gian-Kasper, IPCC WGI TSU)
627	11	20	47	20	48	Careful coordination of this statement with the working group 1 report should be ensured, providing cross-reference to specific relevant chapter sections. (Mach, Katharine, IPCC WGII TSU)
628	11	20	53	20	53	"Although there is a large literature..." Confusing and incomplete. Perhaps "a large body of literature." (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
629	11	20	53	20	53	The reference to working group 1 should be much more specific, cross-referencing the relevant chapters and sections. (Mach, Katharine, IPCC WGII TSU)
630	11	20	53	20	54	Climate change may affect the moonsoon which related with the air quality. Here list some references:[1] Zhao C, Wang YH, Yang Q, etc.(2010) Impact of East Asian summer monsoon on the air quality over China: View from space. Journal of Geophysical Research: Atmospheres vol.15(D9). [2] Xu M,Chang CP, FU CB, etc.(2006) Steady decline of esat Asian monsoon winds, 1969-2000: evidence from direct ground measurements of wind speed. Journal of Geophysical Research, vol. 111,D24111, doi:10.1029/2006JD007337. (Tan, Jianguo, Shanghai Meteorological Institute)
631	11	20	53	21	1	Please provide a specific reference to WGI, e.g. WGI Ch6. (Plattner, Gian-Kasper, IPCC WGI TSU)
632	11	20	53	21	2	11.5.3. Air Quality: "Although there is a large literature on the health effects of particle air pollution (see Box 11 -4), WGI indicates that there is little evidence that climate change, per se, will affect long- term particle levels in a consistent way. Thus, we focus here on chronic ozone exposures, which are found in WGI (Ch x) to be enhanced in some scenarios of future climate change." In a changing climate with increasing summer temperatures there should be a tendency to a more frequent occurrence of dry periods with re-suspension of coarse mode particles (2.5 -10 µm diameter) and a higher probability for wild fires with corresponding health effects. This aspect should be mentioned in this para as well. Corresponding literature see below. There is more information about air quality in chapter 11.9. (Co-Benefits) as in the present chapter. Better structure of the chapters is recommended, e.g. by joining or bringing in a row chapters 11.5.3. and 11.9.1. Important literature missing about health effects of fine particulate air pollution! Lit.: e.g.: Pope, C.A., Dockery, D.W. (2006): Health effects of fine particulate air pollution: Lines that connect. J Air and Waste Management Association 54, 709 – 742. Hong Qiu, Ignatius Tak-sun Yu, Linwei Tian et al. (2012): Effects of Coarse Particulate Matter on Emergency Hospital Admissions for Respiratory Diseases: A Time-Series Analysis in Hong Kong in: Environmental Health Perspectives, volume 120, number 4, April 2012, 572-576. Robin C. Puett,Jaime E. Hart, Jeff D Yanosky et al. (2009): Chronic Fine and Coarse Particulate Exposure, Mortality, and Coronary Heart Disease in the Nurses' Health Study in: Environmental Health Perspectives, volume 117, number 11, November 2009, 1697-1701. M. Rexeis, S. Hausberger (2009): Trend of vehicle emission levels until 2020 – Prognosis based on current vehicle measurements and future emission legislation in: Atmospheric Environment 43 (2009) 4689–4698. A.R. Ravishankara et al. (2012): New Directions: Adapting air quality management to climate change: A must for planning in: Atmospheric Environment 50 (2012) 387–389. (GERMANY)
633	11	20	54	20	54	'per se' should be in italics. (Burt, Peter, University of Greenwich)
634	11	21	1	21	1	For parity with other Chapters, please change 'ch' to 'Chapter'. (Burt, Peter, University of Greenwich)
635	11	21	1	21	1	Specific cross-reference to the relevant chapter, chapter sections, and key findings of working group 1 should be ensured. (Mach, Katharine, IPCC WGII TSU)
636	11	21	7	21	11	Climate change will impact air quality through mechanisms other than direct temperature increase such as changes in stagnation, long range transport, local meteorology (e.g. Jacob and Winner 2009, Jacobson 2008, Fiore et al 2012). In addition, background ozone levels in the troposphere have already increased (e.g. see trends in ozone sonde measurements in the western US and Europe). (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
637	11	21	7	21	19	I think an interesting point to differentiate between when talking about ozone-related mortality projections for the future are the differences between climate impacts and emissions impacts. The paper commonly cited in this subsection by Selin et al (2009) gives some perspective on the difference. They find that globally in 2050, climate change alone will cause a net decrease in ozone-related mortalities. On the contrary they find that changes in emissions in 2050 (and globally as well) will lead to a net increase in ozone-related mortalities. And while their results show that local variations can have a different sign to the global one, projections of ozone in the future show a significant amount of intermodel spread locally while being more consistent on a global average. Therefore I suggest highlighting the difference between climate and emissions impacts and which one is the primary driver highlighted in current research for ozone-related mortality. (Landuyt, William, ExxonMobil Research and Engineering)
638	11	21	12	21	13	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
639	11	21	22	21	22	Again I think that the title should reflect the content better by specifying that it covers "Climate change related air pollution episodes". (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
640	11	21	22	21	45	I realize that the chapter was written before current attention to the very high levels of pollution in Beijing - might be worth a reference. (Lewis, Nancy Davis, East-West Center)
641	11	21	24	0	0	Or they may not increase. Is there evidence in favour of an increase that should be cited? (Stone, Dáithí, University of Cape Town)
642	11	21	24	21	28	The topic of acute air polution episodes hasn't been acknowledged either in the Executive summary, TS or SPM. (NETHERLANDS)
643	11	21	24	21	32	Recommend citing literature related to climate change effects on wildfires and mention the confidence around those projections to give some perspective (Landuyt, William, ExxonMobil Research and Engineering)
644	11	21	24	21	45	Other forest fires episodes have also been reported to increase mortality dramatically (see Analitis A, Georgiadis I, Katsouyanni K. Forest fires are associated with elevated mortality in a dense urban setting. Occup Environ Med 2012; 69: 158-62). It is very plausible that apart from the effects mediated by the increase in particulate matter, there are also effects related to stress (as those that have been reported with other stressful events, such as earthquakes). (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
645	11	21	24	21	45	Other episodes that are climate related are dust storms, which are worth mentioning in this section. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
646	11	21	26	21	26	Please spell out PM2.5 and PM10 and ensure that it's also reflected in the glossary / acronyms. (GERMANY)
647	11	21	34	21	34	We suggest adding " forest fires caused by drought and heat wave in 2010". (UNITED STATES OF AMERICA)
648	11	21	34	21	37	There are also other factors thought to be vital in development of those wildfires (which I understand were often more peat fires than forest fires), involving regional and national policy decisions. (Stone, Dáithí, University of Cape Town)
649	11	21	43	21	43	We believe that 'interaction' is not the appropriate term here. Suggest rewording the sentence to: Ozone episodes are often coincident with heat waves. (UNITED STATES OF AMERICA)
650	11	21	43	21	45	There is further evidence on heat - ozone and heat -PM interaction from the Euroheat project (see Analitis A, Michelozzi P, D'Ippoliti D, de'Donato F, Menne B, Matthies F, Atkinson RW, Iñiguez C, Basagaña X, Schneider A, Lefranc A, Paldy A, Bisanti L, Katsouyanni K. Effects of Heat Waves on Mortality Effect Modification and Confounding by Air Pollutants. Epidemiology 2013, in press). (GREECE)
651	11	21	43	21	45	The interactions between air pollution and temperature are also reported in: Improving public health responses to extreme weather/heat-waves – EuroHEAT. Technical report, 2009, WHO Regional Office for Europe, Copenhagen, Denmark. (POLAND)

#	Ch	From Page	From Line	To Page	To Line	Comment
652	11	21	48	22	9	11.5.3.3. Aeroallergens Very short chapter, only little literature and chapter missing about invasive plants and their pollens. Lit.: e.g.: D'Amato, G., Cecchi, L., Bonini, S., Nunes, C., Annesi-Maesano, I., Behrendt, H., Liccardi, G., Popuv, T., van Cauwenberge, P. (2007): Review article: Allergenic pollen and pollen allergy in Europe. Allergy 62, 976 – 990. (GERMANY)
653	11	21	48	22	9	This section does not cite some newer, key articles, especially in reference to the statement that warmer temps would increase pollen production These are: Ziska et al., 2011 Recent warming by latitude associated with increased length of ragweed pollen season in central N. America Ziska et al., 2003 Cities as harbingers of climate change: Common ragweed, urbanization, and public health (UNITED STATES OF AMERICA)
654	11	21	48	22	9	The Aeroallergens section (11.5.3.3) needs further development. Compared to other prominent reports and papers published recently, the section looks very light on. For example, the "Health Effects of Climate Change in the UK 2012: Current evidence, recommendations and research gaps" report (Vardoulakis and Heaviside, 2012) devoted a full chapter (out of a total of 10 chapters) to effects of aeroallergens on human health under climate change. As another clear indication of the prominence aeroallergens should be getting in this chapter, the impacts of climate change on aeroallergens and allergic respiratory diseases were highlighted as one of only seven key health effects that supported the US Environmental Protection Agency's (EPA's) determination that current and future concentrations of greenhouse gases endanger public health, in EPA's 'Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act' of 7 December 2009 (United States Environmental Protection Agency, 2009). VARDOULAKIS, S. & HEAVISIDE, C. (Editors) 2012. Health Effects of Climate Change in the UK 2012: Current evidence, recommendations and research gaps. London, Health Protection Agency. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY 2009. EPA's Endangerment Finding: Health Effects. [cited 29 April 2013]; Date created and modified: 4 December 2009. Available from: http://epa.gov/climatechange/Downloads/endangerment/EndangermentFinding_Health.pdf. (Beggs, Paul, Macquarie University)
655	11	21	50	21	50	I would dispute that all allergic diseases are climate sensitive: please give a supporting reference (Burt, Peter, University of Greenwich)
656	11	21	50	21	53	I would complete the sentence: Warmer conditions generally favour the production, release of air-borne allergens (such as fungi and lower plant spores and pollen), affected the growing season and increasing the production of spores (Beggs, 2004) and, consequently, there may be an effect on asthma and other allergic respiratory diseases, such as asthma, allergic rhinitis, conjunctivitis and dermatitis (Beggs et al, 2010). (Beggs PJ. Impacts of climate change on aeroallergens: past and future. Clin Exp Allergy. 2004;34:1507–1513) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)
657	11	21	50	21	54	suggest to mention also direct action of CO2 on pollen quantities , biblio 1)Christine A. Rogers --Interaction of the Onset of Spring and Elevated Atmospheric CO2 on Ragweed (Ambrosia artemisiifolia L.) Pollen Production, Environmental Health Perspectives • VOLUME 114 | NUMBER 6 | June 2006; 2) Alix Rasmussen The effects of climate change on the birch pollen season in Denmark Aerobiologia September 2002, Volume 18, Issue 3-4, pp 253-265; 3)Chiara Ziello et al - ,2Changes to Airborne Pollen Counts across Europe ,PLoS ONE April 2012 | Volume 7 | Issue 4 | e34076 (ITALY)

#	Ch	From Page	From Line	To Page	To Line	Comment
658	11	21	50	21	54	These lines refer to the impacts of warmer conditions and higher CO2 on production and release of allergens. It is a major omission of the chapter that the landmark study by Ziello et al. (2012) has not been cited. Ziello et al. (2012) report that their "analysis of a continental-scale pollen data set reveals an increasing trend in the yearly amount of airborne pollen for many taxa in Europe", and that "Climate change may contribute to these changes, however increased temperatures do not appear to be a major influencing factor. Instead, [they] suggest the anthropogenic rise of atmospheric CO2 levels may be influential". Ziello C, Sparks TH, Estrella N, Belmonte J, Bergmann KC, Bucher E, Brighetti MA, Damialis A, Detandt M, Galán C, Gehrig R, Grewling L, Bustillo AMG, Hallsdóttir M, Kockhans-Bieda M-C, De Linares C, Myszkowska D, Pàldy A, Sánchez A, Smith M, Thibaudon M, Travaglini A, Uruska A, Valencia-Barrera RM, Vokou D, Wachter R, de Weger LA, Menzel A. Changes to airborne pollen counts across Europe. Plos One 2012;7(4):e34076. doi:10.1371/journal.pone.0034076 (Beggs, Paul, Macquarie University)
659	11	21	51	21	51	This is muddled, and wrong. I suggest replacing the text in brackets with 'such as fungal and lower plant spores, and pollen from the higher plants'. (Burt, Peter, University of Greenwich)
660	11	21	51	21	51	The text in parentheses does not seem to make sense. Modify as follows: "(such as fungal spores and plant pollen)". (Beggs, Paul, Macquarie University)
661	11	21	51	21	52	Aeroallergens are important triggers of allergic symptoms among those with allergic disease. However, current evidence is quite clear that no allergens are important determinants of the risk of developing allergic diseases. This should be clarified in the text. Therefore, modify, starting on line 51: .. and, consequently, there may be MORE SYMPTOMS AMONG THOSE WITH ALLERGIC DISEASE, such as asthma, allergic rhinitis...(Beggs el al, 2010). HOWEVER, CURRENT EVIDENCE SUGGESTS THAT ALLERGENS ARE NOT MAJOR DETERMINANTS OF THE RISK OF DEVELOPING AN ALLERGIC DISEASE. THEREFORE, A MAJOR INCREASE IN THE NUMBER OF PEOPLE WITH ALLERGIC DISEASES IS UNLIKELY. (Pekkanen, Juha, National Institute for Health and Welfare)
662	11	21	52	21	53	The word "asthma" appears both before and after "and other allergic respiratory diseases, such as". Delete the second occurrence. Further, conjunctivitis and dermatitis are not respiratory diseases. (Beggs, Paul, Macquarie University)
663	11	21	53	0	0	"effect on ASTHMA and other allergic resp. diseases, such as ATHMA, ... (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
664	11	21	53	21	53	'et al' should be in italics, with a full stop after the 'l'. (Burt, Peter, University of Greenwich)
665	11	21	53	21	53	"Beggs et al, 2010" is missing in the References section (see page 39, line 41). The "et al" also needs to be in italics and include the full stop, or just deleted if the actual reference is: Beggs PJ. Adaptation to impacts of climate change on aeroallergens and allergic respiratory diseases. International Journal of Environmental Research and Public Health 2010;7(8):3006-3021, doi:10.3390/ijerph7083006 (Beggs, Paul, Macquarie University)
666	11	21	53	21	54	I would complete the sentence: Children are particulary susceptible to most allergic diseases (Schimier and Ebi, 2009) manifested by chronic diseases such as asthma (Raphoz et al., 2010; Héguy et al., 2008). (Raphoz, M., Héguy, L., Garneau, M., Goldberg, M., Guay, F., Valois, M.-F. 2010. Associations Between Atmospheric Concentrations of Spores and Emergency Department Visits for Asthma Among Children Living in Montreal. Archives of Environmental and Occupational Health, 65 (4), 201-210) (Héguy, L., Garneau, M., Goldberg, M., Raphoz, M., Guay, F., Valois, M.-F. 2008. Associations between grass and weed pollen and emergency department visits for asthma among children in Montreal. Environmental Research, 106 (2), 203-211) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)

#	Ch	From Page	From Line	To Page	To Line	Comment
667	11	21	54	22	1	I would add: Moreover, increasing temperatures may extend the sporulation period, thereby providing longer time intervals for exacerbating allergic symptoms and therefore trigger respiratory disease (Raphoz et al., 2010). (Raphoz, M., Héguy, L., Garneau, M., Goldberg, M., Guay, F., Valois, M.-F. 2010. Associations Between Atmospheric Concentrations of Spores and Emergency Department Visits for Asthma Among Children Living in Montreal. Archives of Environmental and Occupational Health, 65 (4), 201-210) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)
668	11	21	54	22	2	The sentence in these lines relates to changes in the timing of the pollen season, although it is doing it indirectly by referring to the timing of "flowering" rather than the timing of pollen or allergen in the atmosphere. It is a major omission of the chapter that the landmark study by Ziska et al. (2011) has not been cited. Ziska et al. (2011) "report that duration of the ragweed (Ambrosia spp.) pollen season has been increasing in recent decades as a function of latitude in North America", and that "Overall, these data indicate a significant increase in the length of the ragweed pollen season by as much as 13–27 d at latitudes above ~44°N since 1995". Ziska L, Knowlton K, Rogers C, Dalan D, Tierney N, Elder MA, Filley W, Shropshire J, Ford LB, Hedberg C, Fleetwood P, Hovanky KT, Kavanaugh T, Fulford G, Vrtis RF, Patz JA, Portnoy J, Coates F, Bielory L, Frenz D. Recent warming by latitude associated with increased length of ragweed pollen season in central North America. Proceedings of the National Academy of Sciences of the United States of America 2011;108(10):4248–4251. www.pnas.org/cgi/doi/10.1073/pnas.1014107108 (Beggs, Paul, Macquarie University)
669	11	22	0	0	0	This chapter looks in a very good state to me. (Stone, Dáithí, University of Cape Town)
670	11	22	0	0	0	Many statements centred on the "may", which often did not seem to indicate whether the opposite statement was any less plausible or probable. (Stone, Dáithí, University of Cape Town)
671	11	22	0	0	0	The evidence, agreement, confidence, and likelihood as discussed in the text was rarely indicated using the calibrated language per IPCC guidance. It would be helpful if this could be included more often. (Stone, Dáithí, University of Cape Town)
672	11	22	1	0	0	There is also evidence of earlier flowering of other plants with allergenic pollen (e.g. hazel, birch) not just prairie tallgrass. Mentioning only prairie tallgrass is therefore missleading. E.g. Veriankaite L, Sauliene I, Bukantis A (2010): The modelling of climate change influence on plant flowering shift in Lithuania. Zemdirbyste-Agriculture, Vol. 97, No. 1: 41-48. (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
673	11	22	1	22	1	What is the significance of prairie tallgrass (as opposed to other flowering species) and please give taxonomic details. (Burt, Peter, University of Greenwich)
674	11	22	2	0	0	Can a stronger word than "may" be used here? It sounds like the opposite is possible too. (Stone, Dáithí, University of Cape Town)
675	11	22	6	22	7	I would complete the sentence: Pollen levels have also been linked to hospital visits with rhinitis symptoms (Breton et al., 2006) and for airborne spores, lagged positive effects between Cladosporium and Basidiospores and initial emergency department visits have been found (Raphoz et al., 2010). (Raphoz, M., Héguy, L., Garneau, M., Goldberg, M., Guay, F., Valois, M.-F. 2010. Associations Between Atmospheric Concentrations of Spores and Emergency Department Visits for Asthma Among Children Living in Montreal. Archives of Environmental and Occupational Health, 65 (4), 201-210) (Raphoz, Marie, Ouranos, Consortium on Regional Climatology and Adaptation to Climate Change)
676	11	22	7	0	0	" to be aded: " as well as followed higher prevalence of asthmatics sensitized to common pollen allergens in the same period. (Karadzinska et al., 2012) Reference: Karadzinska Bislimovska J, Minov J, Kendrovski V, Milkovska S, Stoleski S, Mijakoski D. Prevalence of the Respiratory Allergies among Adult Population in the City of Skopje in Relation to Climatic Change and Change in Pollen Micro Flora. J Env Prot. 2012 ; 3 (10): 1364-1372" (Kendrovski, Vladimir, World Health Organization Regional Office for Europe)

#	Ch	From Page	From Line	To Page	To Line	Comment
677	11	22	7	22	7	Why is a 2006 paper being cited here? Surely this should be excluded given it is prior to the AR4 published in 2007. Indeed, it seems inconsistent with the start of the sentence in line 21. (Beggs, Paul, Macquarie University)
678	11	22	7	22	9	This references appears not necessary, please delete. (Pekkanen, Juha, National Institute for Health and Welfare)
679	11	22	8	22	8	On Higher T may modify the effects of air pollutants like ozone: This would imply that higher T modifies other air pollutants. None are mentioned. There is also no mention of an association or lack of regarding exposure to both high T and air pollution (i.e. interaction or lack of). (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
680	11	22	9	22	10	Missing nationwide US study showing significant increases in the length of the ragweed pollen season by as much as 13-27 days at latitudes above 44N associated with a warming trend since 1995. Ziska, L., et al., Recent warming by latitude associated with increased length of ragweed pollen season in central North America. Proceedings of the National Academy of Sciences of the United States of America. 2011. 108(10): p. 4248-4251. (UNITED STATES OF AMERICA)
681	11	22	12	22	44	Why is there absolutely no mention of aeroallergens in this section, when they are the focus of one of the preceding three sections? (Beggs, Paul, Macquarie University)
682	11	22	14	22	14	Specific cross-reference to the relevant chapters, chapter sections, and key findings of working group 1 should be ensured. (Mach, Katharine, IPCC WGII TSU)
683	11	22	14	22	15	Please provide a specific reference to WGI,e,g, WGI Ch11. (Plattner, Gian-Kasper, IPCC WGI TSU)
684	11	22	16	22	17	The statement about modification by ozone is repeated in the previous section; here the emphasis should be on future events. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
685	11	22	17	22	19	11.5.3.4. Near-Term Future: “Increasing urbanization, use of solid biomass fuels and industrial development in the absence of emission controls could also lead to increases in ozone chemical precursors (Selin et al., 2009; Wilkinson et al., 2009).” Reformulate into: Increasing urbanization, use of solid biomass fuels and industrial development in the absence of emission controls could also lead to increases in particulate matter (fine and coarse mode). Corresponding literature: Tong Zhu, Megan L. Melamed, David Parrish et al. (2012): GAW Report No. 205 of WMO/IGAC "Impacts of Megacities on Air Pollution and Climate". (GERMANY)
686	11	22	21	22	24	Provide projections from any one of these studies. Even the table is silent on the trends (NETHERLANDS)
687	11	22	22	22	23	The sentence "most studies focus on Europe, the U.S. and Canada" seems awkwardly positioned in the paragraph. Better integrating the sentence into the paragraph's content is recommended. (CANADA)
688	11	22	29	22	29	Poor English: please replace 'like' with 'such as'. (Burt, Peter, University of Greenwich)
689	11	22	32	22	32	Please explain which 'present air quality legislation' is being referred to, and whether the study models a particular country's current air quality legislation being applied to all countries in the world, as the current text suggests. (AUSTRALIA)
690	11	22	37	22	37	Add studies that looked at projections of PM2.5 and carbonaceous aerosols for 2050 (e.g. Spracklen et al 2009; Tai et al 2012). (UNITED STATES OF AMERICA)
691	11	22	37	22	44	This paragraph is anecdotal. Is this area poorly researched? (AUSTRALIA)
692	11	22	41	22	42	'et al' should be in italics. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
693	11	22	47	0	0	para 11.6 - recent evidence show the direct influence of climate variables and ozono on nutritional balance (proteins, carbohydrates, vitamines contents) in rice and bairley :1) Yunxia Wanga et al -The impact of atmospheric CO2 concentration enrichment on rice quality – A research review. .Acta Ecologica Sinica Volume 31, Issue 6, December 2011, Pages 277–282 2) Michael Freia, et al , The response of rice grain quality to ozone exposure during growth depends on ozone level and genotype. Environmental Pollution .Volume 163, April 2012, Pages 199–206; 3) Petra Högy et al -Impacts of temperature increase and change in precipitation pattern on crop yield and yield quality of barley Original Research Article Food Chemistry, Volume 136, Issues 3–4, 15 February 2013, Pages 1470-1477 (ITALY)
694	11	22	49	24	22	Section 11.61: Page 5 line 36 - The problem of undernutrition and climate change seems to be poorly represented in this chapter. Nutrition issues are rising on the global health agenda based on evidence of increasing problems in some areas, high prices of staples, spikes associated with climate and political sensitivity (see Scaling Up Nutrition http://scalingupnutrition.org). Suggest this section be modified to include the following information. There are three major pathways to undernutrition identified by UNICEF (1990). These are the food security pathway The maternal and child caring pathway: 3) the disease pathway. White the connection between the pathways 1 and 3 are fairly well developed (see sections x and x) the impact of climate and environmental change on the maternal and child caring pathway is substantially lacking. In addition, climate and agro-ecological change, variability and shocks (disasters) further affect the underlying determinants of nutrition Cite if possible: UNICEF (1990) Strategy for improved nutrition of women and children in developing countries. A UNICEF policy review. New York: UNICEF,1990. Tirado MC, Crahay P, CohenM, Hunnes D, Denton F, Lartey A, Challinor A (2012) Climate Change and Nutrition in Africa. Sunray Working Paper 2012 https://www.globalcube.net/clients/ntw/content/medias/download/SUNRAY_Climate_change_and_nutrition.pdf (UNITED STATES OF AMERICA)
695	11	22	51	23	2	"Many of these factors are influenced by climate." Not clear if reference is to all prior elements: agricultural production, governance, human disease or appetite, nutrient adsorption and catabolism. If governance is to be included consider changing "are" to "may" or including more specific citations. (UNITED STATES OF AMERICA)
696	11	22	51	23	2	The introductory section on nutrition should present the concept of food and nutrition security i.e. The availability, access, affordability and utilization of a diet that is sufficient in both energy and in the essential nutrients for health. The definition of malnutrition here - linked to poverty alone is too simplistic to be useful. (UNITED STATES OF AMERICA)
697	11	22	51	24	22	Multiple confusing definitions of nutrition used in this section. These must be standardised. There is increasing use of the term "undernutrition" to relate to acute (wasting) and chronic (stunting) undernutrition as well as micronutrient deficiencies. The term "malnutrition" is now more widely used to reflect "malnutrition in all its forms" including overnutrition. Terminology must be standardised and it would be good to follow the growing convention of using undernutrition for "wasting", "stunting" and micronutrient deficiencies. (UNITED STATES OF AMERICA)
698	11	22	52	0	0	Pleae replace the term "governance" by the term "distribution" or "access to products". The term "governance" is formally correct however is hiding the real issue to people who are not very familiar with the issue. (Zacher, Winfried, Germanwatch)
699	11	23	2	23	2	I think 'ability' should be 'inability' (otherwise text does not make sense). (Burt, Peter, University of Greenwich)
700	11	23	5	23	24	The important recent systematic review by Knox et al. Environ. Res. Lett. 7 (2012) 034032 should be cited and discussed in this section. The paper brings together previous estimates of climate change impacts on major crop yields in Africa and Asia. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
701	11	23	9	23	10	1. The sentence "The magnitude… of decline is small compared to the increase…. " is not supported by the quote source: Lobell 2011 2. But even if this were true such a statement would be very misleading under the heading "11.6.1. Nutrition". The relevant aspect with world nutrition is not the balance of food increase vs. decrease in production because if the increase is happening in other regions (e.g in the north/industrialized countries) than the decrease (e.g. developing countries in the south) the result will be an increase of malnutrition in the south because of lack of access to the increased production in the north. (Zacher, Winfried, Germanwatch)
702	11	23	9	23	10	cross reference with studies from Southern Africa. Evidence shows that harvets are decreasing dispite mechanisation (NETHERLANDS)
703	11	23	23	23	23	Do you mean 'pest crops' rather than 'pests'? For example, many insects are pests, but they will not have enhanced growth at > CO2 levels. (Burt, Peter, University of Greenwich)
704	11	23	24	23	25	The explanation for stunting is not "weight for age" but "height for age". (Zacher, Winfried, Germanwatch)
705	11	23	27	23	24	There is no definition of "undernourishment" - it is equated to "hunger" but no definition is provided. The definition of stunting (l.25) is incorrect - currently says "weight for age" should say "height for age". l.40 doesn't make sense "per capita calorie under". l.44 is a real mess - what does "under- and mal-nutrition" mean? l.53 now defines "undernourishment" as "too little food" - what does this mean? p.24 l.2 what is "severe stunting" - are you going to provide a definition? p.24 l.8 Did the model only look at stunting and mortality - what about wasting - wasting is a much greater risk factor than stunting for childhood mortality. p.24 l.17 What does "small for age" mean in this sentence? (UNITED STATES OF AMERICA)
706	11	23	34	23	34	Should the word 'chronic' be here? If so, please clarify its meaning. (Burt, Peter, University of Greenwich)
707	11	23	35	0	0	Stunting is height for age and not weight for age (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
708	11	23	35	23	35	Stunting is measured as height for age, not weight for age. (UNITED STATES OF AMERICA)
709	11	23	38	23	38	'et al' should be in italics. (Burt, Peter, University of Greenwich)
710	11	23	40	23	40	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
711	11	23	41	23	41	"the world projected in the former is wetter and drier" - contradictory statements. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
712	11	23	41	23	45	These projections haven't been acknowledged either in the Executive summary, TS or SPM. (NETHERLANDS)
713	11	24	1	24	1	'et al' should be in italics. (Burt, Peter, University of Greenwich)
714	11	24	8	24	8	'et al' should be in italics. (Burt, Peter, University of Greenwich)
715	11	24	8	24	23	The authors are missing a study by Battisi and Naylor, Science 2009. Climate change projections of doubling the number at risk of hunger globally by the middle of this century. (UNITED STATES OF AMERICA)
716	11	24	9	24	11	The scenarios of climate change used for these projections should be specified. (Mach, Katharine, IPCC WGII TSU)
717	11	24	15	24	15	'et al' should be in italics. (Burt, Peter, University of Greenwich)
718	11	24	18	24	18	The need for substantial investments in education to reduce the (future) proportion small-for-age children described in the context of (Grace et al. 2012) is tenuous and needs to be explained more clearly. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
719	11	24	20	24	20	"high confidence" should be italicized for clarity, and the chapter team should consider parenthetical presentation of the level of confidence within the statement to maximize directness of wording. (Mach, Katharine, IPCC WGII TSU)
720	11	24	20	24	22	Very nice summary statement. (Stouffer, Ronald, Geophysical Fluid Dynamics Laboratory/NOAA)

#	Ch	From Page	From Line	To Page	To Line	Comment
721	11	24	25	25	24	The section on occupational health points among others to the issue of loss of work productivity; - there might also be an issue that healthcare workers can become affected themselves and this consequently put an additional risk on the delivery of health services (should be considered at least somewhere more explicitly in the health chapter, e.g. here / at the end in the gaps section; in Ch 23, p.27 l. 38 there is at least already a little indication on this) Corresponding literature: National Institute for Occupational Safety and Health (NIOSH) - Centers for Disease Control and Prevention (2011): "Protecting Workers from Heat Illness" (no. 174) (GERMANY)
722	11	24	27	24	28	Since AR4, also the paper of Schulte and Chun (2009) has been published. The paper provides a good framework for evaluating the effects of climate change on occupational safety and health. Reference: Schulte PA, Chun H. Climate change and occupational safety and health: establishing a preliminary framework. J Occup Environ Hyg. 2009;6(9):542-54. doi: 10.1080/15459620903066008. (Rintamäki, Hannu, Finnish Institute of Occupational Health)
723	11	24	34	24	35	Page 24, line 34-35. Please check temperature thresholds and provide citations. Fore example, the authors may refer to Bouchama et al. 2007 Prognostic Factors in Heat Wave-Related Deaths: A Meta-analysis. ARCH INTERN MED/VOL 167 (NO. 20), where the heat-stress threshold is defined at 40C. It may be helpful to emphasize the heat stroke is a result of internal body temperature reaching 41C. (UNITED STATES OF AMERICA)
724	11	24	49	24	50	References duplicated. (Burt, Peter, University of Greenwich)
725	11	25	1	25	13	On other occupational health concerns: no mention of impacts to workers, including health workers during extreme climatic events for example. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
726	11	25	3	25	3	What is the meaning of "psychological performance"? (UNITED STATES OF AMERICA)
727	11	25	3	25	8	Move this section to the section on Malaria (NETHERLANDS)
728	11	25	3	25	13	Section 11.6.2.3.: It needs to be re-arranged according to the most common problems as following: first (vector-borne diseases--line 4-8) then write (psychological performance and increased risk of injuries line 3) then put (In the Arctic, ----line 12 -13), then finally (increased chemical poisoning--- line 10-11). (Saad-Hussein, Amal, National Research Center)
729	11	25	10	25	13	It could also be mentioned, if space allows, that wet skin caused by heat stress may increase contamination and absorption through skin. Moreover, in the heat, workers may try to minimize heat stress by avoiding the use of persona protective devices, which increases the risk of contamination. (Rintamäki, Hannu, Finnish Institute of Occupational Health)
730	11	25	11	25	13	Move this to section 11.6.2.2 (NETHERLANDS)
731	11	25	17	25	25	This discussion is missing a 2010 study showing hot extremes across the US reaching beyond physiological tolerance. Diffenbaugh and Ashfaq. Intensification of hot extremes in the United States. Geophy Res Lett, 37: L15701, doi: 10.1029/2010GL043888. This study might also fit on page 30, bottom of page. (UNITED STATES OF AMERICA)
732	11	25	22	25	22	'et al' should be in italics. (Burt, Peter, University of Greenwich)
733	11	25	27	26	13	This section does not deal only with Mental Health but also with stress effects from disasters, not stricktly related to mental health. This should become reflected in the title. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
734	11	25	29	25	33	There are some big statements in this paragraph with only 1 citation. There is a very large list of impacts and includes 'losing hope' with mental illness. Lots of concepts in this sentence. Please clarify with greater coverage of published studies. (AUSTRALIA)
735	11	25	29	26	13	Mental health: According to WHO, a large majority of people with mental health live in poverty and poor physical health. This would make them even more vulnerable to climate change impacts than implied here. http://www.who.int/mental_health/policy/development/en/ (Corvalan, Carlos, Pan America Health Organization / World Health Organization)

#	Ch	From Page	From Line	To Page	To Line	Comment
736	11	25	30	25	30	Although it is correct, why switch to the British spelling of 'behaviour' when American spellings have been used elsewhere (eg page 26, line21)? (Burt, Peter, University of Greenwich)
737	11	25	32	25	33	There is a danger of over-pathologising mental health in these relationships - e.g. losing hope is not a mental health disorder, simply a natural emotional reaction to the situation described. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
738	11	25	38	25	38	O'Brien et al. - please use published references (AUSTRALIA)
739	11	25	38	25	38	Order of references wrong, and reference style wrong. Also, why use 'under review' as a citation here? Most journals would not publish this, what happens if the paper is rejected? Much more riobust to keep to papers already published (or which are known to be 'accepted/in press'). (Burt, Peter, University of Greenwich)
740	11	25	40	25	41	Can you state which disorders you mean when referring to harsher weather conditions worsening their condition - or if this is for all conditions please state this. It would also be useful to describe why this occurs - I am struggling to see how bipolar depression or schizophrenia for instance worsen with worse weather. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
741	11	25	40	25	53	This is a very long paragraph to try to make a very weak justification in the last sentence. Essentially you are saying that social capital is important for coping with mental health (true) and that disasters impact on social capital (also true). I don't really see the need for 10 lines of rather unnecessary text to make this simple point. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
742	11	25	46	0	0	the sentence "vulnerable are most at risk" should be reworded. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
743	11	25	52	25	52	Delete full stop. (Burt, Peter, University of Greenwich)
744	11	26	0	0	0	Section 11.6.4 it would be helpful to make the crosswalk from Chapter 11 to related materials in Chapter 12. See specifically, Section 11.6.4 (Violence and population displacement) and Section 11.8.4. (Health consequences of displacement, migration, and social conflict) should both have a pointer in the text to Chapter 12, Section 12.5 (Dimensions of conflict and vulnerability to climate change). (UNITED STATES OF AMERICA)
745	11	26	0	0	0	The authors should consider a paper by Salomon et al. Climate change and Violence. See Nature 476, 438–441 (25 August 2011) doi:10.1038/nature10311 (UNITED STATES OF AMERICA)
746	11	26	1	26	13	These two paragraphs are weak and should either be deleted or edited extensively. In the first sentence do you mean these disorders are the most common globally or those most commonly associated with climate change or climate factors? I think much of these two paragraphs is poorly evidence views and I am also not sure that some of the disorders are those most mental health professionals would classify as disorders. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
747	11	26	10	26	13	I think that this paragraph should go under the sections on Direct effects. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
748	11	26	13	26	13	After "opportunity." add "Children are particularly vulnerable group, experiencing the most severe mental health reactions to extreme events. Extreme events also feature in epidemiological research on the most prominent fears of childhood (Ronan et al., 2008; see also Finnis et al., 2007). Citations : Ronan, K. R., Crellin, K., Johnston, D. M., Finnis, K., Paton, D., & Becker, J. (2008). Promoting child and family resilience to disasters: Effects, interventions, and prevention effectiveness. Children, Youth, and Environments, 18(1), 332-353.; Finnis, K., Johnston, D., Becker, J., Ronan, K.R., Paton, D. (2007). School and community-based hazards education and links to disaster resilient communities. In I. Kelman (Ed.), Earthquake safety of schoolchildren (special issue), Regional Development Dialogue (RDD), 28(2). Nagoya, Japan: United Nations Centre for Regional Development. (Ronan, Kevin, CQUniversity Australia)

#	Ch	From Page	From Line	To Page	To Line	Comment
749	11	26	16	0	0	Authors should coordinate with chapters 12 and 19 to ensure consistent message on conflicts and climate change. (Chatterjee, Monalisa, IPCC WGII TSU)
750	11	26	16	0	0	Section 11.6.4: Please coordinate with and cross-reference the relevant discussions in Chapters 12 and 19. (Mastrandrea, Michael, IPCC WGII TSU)
751	11	26	16	26	53	General comment of section 11.6.4. I think this is very vague and not really related to health, except for the first paragraph, although I am surprised there is no reference to seasonal spikes in suicide and homicide in South Asia during the pre-monsoon. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
752	11	26	16	26	54	This is a reasonable treatment of the role of climate on violence and population displacement. Suggest greater congruence with Chapter 12. References cited here would be useful in helping clarify consensus statements of chapter 12, which has its own internal inconsistencies. Please confer with Chapter 12 counterparts. (UNITED STATES OF AMERICA)
753	11	26	18	26	18	Insert comma after 'Wisconsin'. (Burt, Peter, University of Greenwich)
754	11	26	18	26	19	The Li et al. 2011 study the authors refer to was performed in New York and not in Miwaukee. Wrong citation??? Please check. (Stilianakis, Nikolaos, European Commission)
755	11	26	18	26	23	It could be helpful to specify the time frames relevant to these statements. (Mach, Katharine, IPCC WGII TSU)
756	11	26	18	26	24	Section 11.6.4 should include the recent citation re: the relationship of ambient temperatures to violent crime in Dallas, TX, see: Gamble, J.L. and J.H. Hess, 2012. Temperature and violent crime in Dallas, Texas: Relationships and implications of climate change. Western Journal of Emergency Medicine 13(3): 239-246. (UNITED STATES OF AMERICA)
757	11	26	19	0	0	The citation is incorrect; it is not Li, Horton, Kinney. Should be: Li, Sain, Mearns, Anderson, Kovats, Ebi, Patz. The impact of heat waves on morbidity in Milwaukee, WI. Climatic Change, 2011. (UNITED STATES OF AMERICA)
758	11	26	19	26	10	Reference style needs correctiong. (Burt, Peter, University of Greenwich)
759	11	26	21	26	21	Delete full stop after 'suicide'. (Burt, Peter, University of Greenwich)
760	11	26	26	26	27	It may be of additional interest: The WBGU report of 2007: German Advisory Council on Global Change (2007) Climate change as a security risk, Earthscan, London (available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2007/wbgu_jg2007_engl.pdf) analyses a large range of literature on environmental assets and conflict. It also tackles the risk of migration due to climate change (e.g. coastal regions and large cities). THe document also shows interesting maps on page 32. The maps are based on Carius, A, Tänzler, D and Winterstein, J (2006) 'Weltkarte von Umweltkonfl ikten: Ansätze zur Typologisierung. Expertise for the WBGU Report "World in Transition: Climate Change as a Security Risk"'. WBGU website, http://www.wbgu.de/wbgu_jg2007_ex02.pdf. (Matthies, Eva Franziska, Consultant)
761	11	26	26	26	53	Cross-reference to relevant key findings and sections of chapters 12 and 19 should be provided, with careful attention to appropriate harmonization of assessment across the chapters. (Mach, Katharine, IPCC WGII TSU)
762	11	26	29	26	29	The study by Burke et al. (2010) has been hotly disputed and is still considered controversial, it is therefore suggested to re-consider its use. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
763	11	26	41	26	42	this can not be a paragraph. Can the author substantiate or merge this with another paragraph. (NETHERLANDS)
764	11	26	41	26	42	Sentence seems out of place and somewhat repetitive of something that was said before in the same section. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
765	11	27	1	27	8	Increases in socioeconomic status have probably been more important than public health interventions in increasing life expectancy and years of health life. (Lewis, Nancy Davis, East-West Center)

#	Ch	From Page	From Line	To Page	To Line	Comment
766	11	27	2	27	39	Section 11.7, Adaptation to Protect Health: Page 27, Lines 2- 39 The authors could refer to Singh & Dhiman, (2012) reference to Indian Prime Minister's National action plan on climate change (Singh, M. undated) http://pmindia.nic.in/climate_change_english.pdf ; which provides 9 bullet points and affirms the necessity of poverty alleviation. Singh PK, Dhiman RC. Climate change and human health: Indian context. J Vector Borne Dis. 2012 Jun;49(2):55-60. Please see: http://www.mrcindia.org/journal/issues/492055.pdf Singh, M. undated. National Action Plan on Climate Change. http://pmindia.nic.in/climate_change_english.pdf (UNITED STATES OF AMERICA)
767	11	27	4	27	4	The most important factor of health melioration is the degree of economical development. It is not even mentioned. (Godefridi, Drieu, Cogito)
768	11	27	6	27	7	Add “improved housing” to the provision of safer water and improved sanitation. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
769	11	27	14	27	14	“Climate-sensitive health outcomes” are easily understood when we think of diseases which may change with climate, such as some VBDs. It is more difficult to think e.g. of a PTSD, which may occur much after a serious climate extreme event, as a climate-sensitive health outcome. Even more remote would be to call climate-sensitive health outcomes the health consequences of a group which migrated after a climatic extreme event. Perhaps a more useful term would be “climate-related health outcomes” (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
770	11	27	19	0	0	The reference given "World Health Organization, 2012" is in fact not quoted in the list of "references" on p. 38 ff (Zacher, Winfried, Germanwatch)
771	11	27	19	27	19	The reference (World Health Organization, 2012) is not included in the references section in this chapter (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
772	11	27	24	27	24	Meaning not clear. Do you mean between 5 people and 10,000 people died, as written, or between 5,000 and 10,000? (Burt, Peter, University of Greenwich)
773	11	27	25	27	25	Cyclone Sidr occurred in 2007, but the population estimate is referenced to 2005. (NETHERLANDS)
774	11	27	32	27	32	Delete comma after 'transitional'. (Burt, Peter, University of Greenwich)
775	11	27	32	27	39	The discussion of improved public health surveillance as an adaptation measure useful for both early detection of health risks and as part of an early warning system, is missing from the chapter. Suggest here including 'improving surveillance systems and ensuring appropriate integration with environmental factors so that the data can be used for detection and early warning systems.' (UNITED STATES OF AMERICA)
776	11	27	32	27	39	This paragraph could be shortened, providing instead cross-reference to follow the material in Chapter 20 and 14-16, as well as the glossary. (Mach, Katharine, IPCC WGII TSU)
777	11	27	42	28	13	Page 27, Line 42-page 28 line 13: This is an alternative spot for Datar (2013) Datar A, Liu J, Linnemayr S, Stecher C. The impact of natural disasters on child health and investments in rural India. Soc Sci Med. 2013 Jan;76(1):83-91. doi: 10.1016/j.socscimed.2012.10.008. Epub 2012 Nov 7. http://www.sciencedirect.com/science/article/pii/S0277953612007307 (UNITED STATES OF AMERICA)
778	11	27	44	27	44	The mechanism and logic underpinning this assertion should be clarified. (Mach, Katharine, IPCC WGII TSU)
779	11	27	45	27	45	The word 'background' need to be replaced by 'existing' (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
780	11	27	47	26	47	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
781	11	27	49	27	51	Possibly include here the role of public health preparedness and response in increasing resilience to (climate change related) disasters and mentione e.g. Keim, ME (2008) Building human resilience: the role of public health preparedness and response as an adaptation to climate change. American Journal of Preventive Medicine, 35 (5), 508-516. (Matthies, Eva Franziska, Consultant)

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782	11	28	1	28	4	"rotavirus, a climate sensitive pathogen, were delayed and diminished." This is in conflict with p. 19, lines 19-25, which state both that variation in rotavirus peaks are inconsistent with season and may be attributable to birth rates, and that vaccination was anticipated to increase seasonality. This needs to be harmonized. (UNITED STATES OF AMERICA)
783	11	28	16	28	27	11.7.2 Suggested to the authors as part of their consideration of a deeper analytical framework for human settlements of indigenous peoples stated in general comments for chapter 11: Health in the attached support document: Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry, section, III B. Adaptation Strategies for Rural Indigenous Communities with Climate Change Health Impacts ,pages 12-13.. These strategies are applicable to permanent settlements, partially displaced settlements, or settlements with longer term transmigration. Health prevention campaigns that use indigenous languages effectively address the health issue for that segment of the population. All cultures identify themselves through language. When a different language is used from the indigenous culture, people disassociate themselves from that social construction. Indigenous languages, when used as languages for planning in bi-lingual settings, improve conceptual knowledge of all parties, and it brings more legitimacy to the planning process earlier on. It is also often more accurate, given that descriptions and definitions of the local environment are often held by people who possess traditional knowledge, knowledge that it inaccessible to outsiders. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
784	11	28	16	28	27	[Continued] Communication with indigenous communities in the process of transmigration is critical. The need for potable medical records is even more acute among immigrant indigenous. Simple Excel files that contain important health data can be constructed and sent by patients themselves or persons they authorize over the internet. Community based efforts are needed in order to change the isolation of immigrant indigenous communities from health clinics and health institutions. Certified community health workers/promoters can serve as facilitators of such information exchange. Indigenous knowledge provides current examples of adaptation lessons in areas with similar and shifting climates. Household and community environments are primary impacts on human health. Traditional climatically oriented housing, agricultural and applied technologies in areas impacted by floods and droughts in Southern Mexico and Guatemala are examples of available resources.[1] ([1] Estrategias sociales de prevención y adaptación = Social Strategies for Prevention and Adaptation. ,Virginia García Acosta, Joel Francis Audefroy y Fernando Briones, coords.--México: Centro de Investigaciones y Estudios Superiores en Antropología Social, 2012. See case studies 9,10,11,12. http://redriesgoresiliencia.ciesas.edu.mx/estrategias_sociales.pdf?goback=.gmp_4351851.gde_4351851_member_229247037 , accessed 20 mayo 2013.) (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)

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785	11	28	16	28	27	[Continued] PAHO and the WHO can be requested by the IPCC to draw up adaptation health treatment strategies for immigrant indigenous communities for the regions of Central America and Mexico, given the migration routes are well known and will remain for this population. Increasing funding to health promoters trained for relief work in extreme climate events can be a cost effective approach to decreasing the mortality rate for victims. Identification of potential community leaders for training as certified community health workers/promoters can be local agents for adaptation projects beyond health related climate change effects. Acupuncture is an underutilized and highly mobile medical modality that can greatly assist with trauma related outcomes, fevers, and palliative care for vector borne diseases. Prioritizing funding to states and regions that license acupuncture training to health promoters can incentivize increasing their role in immediate relief efforts for a low cost compared to comparable bio-medicine relief workers. The NADA protocol for trauma victims can be taught by licensed acupuncturists and MD's trained tin the protocol. It is currently being used in Guatemala, Juarez Mexico, and Haiti.[2] ([2] The North American Detox Acupuncture Conference of the NADA Association was held in Denver. Colorado on 4 may, 2013. Presenters on a panel discussion about NADA for Trauma detailed how witnesses and victims of massacres, rapes, hurricanes, and alcoholism were benefiting from the NADA five point auricular acupuncture treatment and training program.) (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
786	11	28	20	28	26	The line refers to "Ten 'essential public health services' undepin coping with the health risks..." but only one example is given. If a reference is made to ten essential services, it feels incomplete refer to them without listing them, and may lead to confusion. Consider listing all, or just make a reference to the paper as an example of health adaptation policy. (UNITED STATES OF AMERICA)
787	11	28	21	28	24	Pleased to see a reference to animal health/veterinary science - interaction of human/animal (and ecosystem) health needs to be considered in a changing climate. See literature on "Eco Health", "One Health", Journal: EcoHealth (Lewis, Nancy Davis, East-West Center)
788	11	28	30	28	42	Here it is not clear what is understood as 'vulnerability' and is not consistent with the terminology e.g. used in chapter 19. (Kienberger, Stefan, University of Salzburg)
789	11	28	30	28	42	Field surveillance is the proven approach to epidemiology, remote sensing is not capable at measuring human impact, etiology, morbidity, or mortality. More important would be a committment to strengthened on-ground surveillance systems that allow identification and characterization of health hazards, particularly infectious diseases. The greatest risk for infectious disease is a proximate case, not remote sensed physical data. Improved surveillance is crucial, beginning with a clear recommendation that reportable diseases, particularly cholera, are in fact reported accurately to WHO. http://www.who.int/csr/resources/publications/cholera/CSR_ISR_2000_1/en/index1.html (UNITED STATES OF AMERICA)
790	11	28	30	28	42	In addition to Remote Sensing and mapping physical risks, what about social and economic risk mapping. A book by Richard Keller on the Paris heat wave is one example. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
791	11	28	30	28	42	This section on vulnerability mapping is very important and the authors should be commended for including it. However, it misses some key recent literature, including the Reid et al. 2009 paper mapping vulnerability to heat in metropolitan areas throughout the US. This approach has been added to by other studies of mapping vulnerability to heat including (Buscail et al. 2012; Harlan et al. 2012; Johnson et al. 2012; Sister et al. 2009; Uejio et al. 2011; Wilhelmi and Hayden 2010) as well as many outside of the US (Buscail et al. 2012; Kershaw and Millward 2012; Loughnan et al. 2009; Rinner et al. 2009). References are: Buscail C, Upegui E, Viel JF. 2012. Mapping heatwave health risk at the community level for public health action. Int J Health Geogr 11:38. Harlan SL, Declet-Barreto JH, Stefanov WL, Petitti DB. 2012. Neighborhood effects on heat deaths: Social and environmental predictors of vulnerability in maricopa county, arizona. Environ Health Perspect. Johnson DP, Stanforth A, Lulla V, Luber G. 2012. Developing an applied extreme heat vulnerability index utilizing socioeconomic and environmental data. Applied Geography 35:23-31. Kershaw SE, Millward AA. 2012. A spatio-temporal index for heat vulnerability assessment. Environ Monit Assess. Loughnan ME, Nicholls N, Tapper NJ. 2009. A spatial vulnerability analysis of urban populations to extreme heat events in melbourne australia. . Melbourne, Australia:Victorian Department of Health. Reid CE, Mann JK, Alfasso R, English PB, King GC, Lincoln RA, et al. 2012. Evaluation of a heat vulnerability index on abnormally hot days: An environmental public health tracking study. Environ Health Perspect 120:715-720. Rinner C, Patychuk D, Jakubek D, Nasr S, Bassil KL, Campbell M, et al. 2009. Developmetn of a toronto-specific, spatially explicit heat vulnerability assessment: Phase i. Toronto, Canada:Toronto Public Health. Sister CE, Boone CG, Golden JS, Hartz D, Chuang WC. Mapping social vulnerability to heat wave in chicago. In: Proceedings of the Fourth Symposium on Policy and Socioì¢‰âÂ‰ÛÏconomic Research at The 89th American Meteorological Society Annual Meeting, 2009. Phoenix, AZ. Uejio CK, Wilhelmi OV, Golden JS, Mills DM, Gulino SP, Samenow JP. 2011. Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability. Health Place 17:498-507. Wilhelmi O, Hayden M. 2010. Connecting people and place: A new framework for reducing urban vulnerability to extreme heat. Environmental Research Letters 5:014021. (UNITED STATES OF AMERICA)
792	11	28	30	28	42	Vulnerability mapping is an important component of adaptation. The section needs to be clear that vulnerability mapping includes more that just the use of satellites for remote sensing, that RS imagery should be validated, and that vulnerability mapping also includes other social, economic and environmental variables, such as water sanitation, transportation, etc. (UNITED STATES OF AMERICA)

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793	11	28	30	28	42	Vulnerability Mapping, Page 28, Lines 30-42: Datar et al. (2013) showed that small and moderate natural disasters carried increased acute illness such as diarrhea, fever, and acute respiratory illness in children; reduces height-for-age and weight-for-age z-scores, increases the likelihood of stunting and underweight, and reduces the likelihood of having full age-appropriate immunization coverage. We also find that disasters' effects vary significantly by gender, age, and socioeconomic characteristics. These data are relevant to several sections, but may be most compelling in Vulnerability Mapping Co-Benefits. Another interesting study on co-vulnerabilities and mapping is Malik, et al. (2012). Particular effort to map co-vulnerabilities and tasking governments with applying resources to this effort will focus adaptation resources where they are most needed, where results most easily measured, and hopefully most rewarding. An important co-morbidity is reported by Singh & Dhiman, (2012) from SEARO, New Dehli: a compounding effect of air pollution and tuberculosis. These authors also raise the issue of behavior change in local adaptive capacity. Datar A, Liu J, Linnemayr S, Stecher C. The impact of natural disasters on child health and investments in rural India. Soc Sci Med. 2013 Jan;76(1):83-91. doi: 10.1016/j.socscimed.2012.10.008. Epub 2012 Nov 7. http://www.sciencedirect.com/science/article/pii/S0277953612007307 Malik SM, Awan H, Khan N. Mapping vulnerability to climate change and its repercussions on human health in Pakistan. Global Health. 2012 Sep 3;8:31. doi: 10.1186/1744-8603-8-31. http://www.globalizationandhealth.com/content/pdf/1744-8603-8-31.pdf Singh PK, Dhiman RC. Climate change and human health: Indian context. J Vector Borne Dis. 2012 Jun;49(2):55-60. Please see: http://www.mrcindia.org/journal/issues/492055.pdf (UNITED STATES OF AMERICA)
794	11	28	32	28	33	It would be really appreciated if authors can add references at the end of this sentence (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
795	11	28	32	28	42	This section should include other examples of vulnerability mapping that include both environmental and socio-economic factors of vulnerability. For example: Johnson, D.P., Wilson, J.S., Luber, G.C. (2009) ‰Û÷Socioeconomic indicators of heat-related health risk supplemented with remotely sensed data', International Journal of Health Geographics 8: 57. Ruddell, D.M., Harlan, S. L., Grossman-Clarke, S. and Buyantuyev A. (2010) ‰Û÷Risk and Exposure to Extreme Heat in Microclimates of Phoenix, AZ'. In: Geospatial Techniques in Urban Hazard and Disaster Analysis. Geotechnologies and the Environment, 2 (2): 179-202. Uejio, C.K., Wilhelmi, O.V., Golden, J.S., Mills, D.M., Gulino, S.P., and Samenow, J.P. 2011. Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability. Health & Place, 17(2): 498‰ÛÒ507. (UNITED STATES OF AMERICA)
796	11	28	39	28	39	After (Casimiro et al 2006), work by Dhiman et al (2011) may be added like " Dhiman et al (2011) mapped the vulnerablity from the viewpoint of temperature and Relative Humidity affecting transmission windows of malaria in India by the projected year 2030. The study highlighted that a few foci in himalayan region are likely to open for transmission and intensity of transmission was projected to be more in northeastern states. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
797	11	28	45	29	20	Early Warning Systems Page 28-29 Lines 13-20: Further work in Botswana could be added here. Alexander et al. (2013) showed that a strong positive correlation was seen between reported diarrhea one month after climatic signals. Diarrhea was greatest during the dry season, apparently in contrast to that seen in watersheds. This argues for education and awareness of practical household-level interventions such as adequate domestic safe water, hygiene, and fecal sequestration at the household and community levels. Alexander KA, Carzolio M, Goodin D, Vance E. Climate Change is Likely to Worsen the Public Health Threat of Diarrheal Disease in Botswana. Int J Environ Res Public Health. 2013 Mar 26;10(4):1202-30. doi: 10.3390/ijerph10041202. http://www.mdpi.com/1660-4601/10/4/1202/pdf (UNITED STATES OF AMERICA)

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798	11	28	47	28	47	It would be really appreciated if authors can add references at the end of these two sentences (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
799	11	28	47	28	49	Please add that early warning systems should be developed in conjunction with intended users and can address decisions across multiple time scales for immediate/disaster response and planning to seasonal scale lead times. (UNITED STATES OF AMERICA)
800	11	28	51	28	51	HHWS = acronym for heat health warning system; Lowe et al (2011) call them heatwave early warning systems and abbreviate with HEWS (Matthies, Eva Franziska, Consultant)
801	11	28	51	29	11	Core elements of heat plans have also been described in: Matthies F, Bickler G, Cardenosa Marin N, Hales S (eds.). 2008. Heat-health action plans: guidance. World Health Organization Regional Office for Europe. Copenhagen, Denmark (available at http://www.euro.who.int/__data/assets/pdf_file/0006/95919/E91347.pdf; and in WHO (2009). EuroHEAT: Improving public health responses to extreme weather events /heat-waves; Techncial summary.WHO Regional Office for Europe, Copenhagen. (available at: http://www.euro.who.int/__data/assets/pdf_file/0010/95914/E92474.pdf. In many cases the terminology (in the European context) describes (national) heat plans which consist of heat early warning systems and public health preparedness and response measures. In France for example preventive measures were established in the context of the National Heat Plan in 2004 (Fouillet et al., 2008) - please see page 29, line 8. The use of "heatwave early warning system" and "heat plan" and the different abbreviations can be confusing. It needs to be stated that both the early warning as well as the public health preparedness and response measures need to be in place. (Matthies, Eva Franziska, Consultant)
802	11	29	1	29	4	Suggest to include also the reference: Schifano et al. (2012) Chnages in the effects of heat on mortality among the elderly from 1998-2010: results from a multi-centre time series study in Italy. Environmental health, 11:58 (doi:10.1186/1476-069X-11-58) desribing the reduction of mortality in the age group greater than 65 years since the introduction of the heat plan (Matthies, Eva Franziska, Consultant)
803	11	29	4	29	4	'et al.' should be in italics. (Burt, Peter, University of Greenwich)
804	11	29	13	0	0	Also see Grover-Kopec et al. An online operational rainfall-monitoring resource for epidemic malaria early warning systems in Africa. Malaria Journal 2005, 4:6 doi:10.1186/1475-2875-4-6. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
805	11	29	13	29	20	Additional Early Warning Systems for malaria, meningitis, harmful algal blooms, cholera--see Conner, Thomson, as well as Brown, CW, D Green, BM Hickey, JM Jacobs, LWJ Lanerolle, SK Moore, DJ Schwab, VL Trainer, J Trtanj, E Turner, RJ Wood, and TT Wynne. 2012. Towards operational forecasts of algal blooms and pathogens, p. 345-368. In SA Morain and AM Budge [eds.], Environmental Tracking for Public Health Surveillance. CRC Press. (UNITED STATES OF AMERICA)
806	11	29	17	29	0	After (Thomson et al 2006), additional information may be added as : In an effort to develop framework for early warning of malaria outbreaks in western India, the importance of cumulative rainfall from May to September , satellite derived vegetation index and Sea surface temperature of South Tropical Atlantic ocean were found useful in predicting the outbreaks with a lead time of one to four months in advance (1. Laneri, K, Bhadra, A, Ionides, EL, Bouma, MJ, Dhiman, RC, Yadav, RS and Pascual, M 2010 Forcing versus feedback: Epidemic malaria and monsoon rains in NW India PLoS Comput Biol, 6(9): Published online 2010 September 2. doi: 10.1371/journal.pcbi.1000898. 2. Baeza ,A., Menno J Bouma Andy Dobson , Ramesh Dhiman, Harish C Srivastava and Mercedes Pascual Malaria Journal 2011, 10:190doi:10.1186/1475-2875-10-190. 3. B. A. Cash, X. Rodó, J. Ballester, M. J. Bouma, A. Baeza, et al. Malaria epidemics and the influence of the tropical South Atlantic on the Indian monsoon. Nature Climate Change, 2013 DOI: 10.1038/nclimate1834 (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
807	11	29	18	29	19	Examples of health alerts for diarrheal disease should be cited and referenced. (UNITED STATES OF AMERICA)
808	11	29	23	0	0	parA 11.7.4 - environmental and land use management policies are not quoted - (ITALY)

#	Ch	From Page	From Line	To Page	To Line	Comment
809	11	29	25	29	35	Other sectors to be mentioned could include: water supply and sanitation(e.g. Sinisi, L., Aertgeerts, R. (eds) (2010) Guidance on water supply and sanitation in extreme weather events. WHO Regional Office for Europe/UNECE, Copenhagen, Denmark (available at: http://www.unece.org/fileadmin/DAM/env/water/whmop2/WHO_Guidance_EWE_Final_draft_web_opt.pdf); Energy, education, tourism, agriculture, land use planners (WHO/HPA, 2013), disaster risk management: e.g. WHO Regional Office for Europe (2011). Hospital emergency response checklist - An all-hazards tool for hospital administrators and emergency managers. Copenhagen, Denmark (available at: http://www.euro.who.int/__data/assets/pdf_file/0020/148214/e95978.pdf (Matthies, Eva Franziska, Consultant)
810	11	29	26	29	26	This sentence could be modified to state: "Within the context of the EuroHEAT project, a review of public health responses to extreme heat in Europe,…" as the Euroheat was a much wider project than a mere review. (Klea Katsouyanni, Hygiene, Epidemiology and Medical Statistics, University of Athens Medical School, Greece) (GREECE)
811	11	29	41	0	0	In addition, community-based disaster risk reduction groups. (Coughlan, Erin, Red Cross / Red Crescent Climate Centre)
812	11	29	47	30	10	Section 11.7.4.: Migration considered as an adaptation measure, while it considered as a cause for increasing vulnerability to climate change, I think it is better to be mentioned in the section of vulnerability. and that after doing good preparations to face it's vulnerability may converte it to be adaptation measure against disaster events. So, the remaining adapted measures can be removed to mention under section 11.8.4.Migration". (Saad-Hussein, Amal, National Research Center)
813	11	29	47	30	10	To describe migration as a means of adaptation could become a bit more clear. Also why it should be mentioned under the role of other sectors? (Matthies, Eva Franziska, Consultant)
814	11	29	49	29	51	Cross-reference to specific sections and findings of chapter 12 should be provided. (Mach, Katharine, IPCC WGII TSU)
815	11	29	50	29	50	Reference style needs correcting (Burt, Peter, University of Greenwich)
816	11	29	50	29	50	The two references McMichael et al, 2012 and McMichael et al, 2010 should be included in the same brackets (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
817	11	29	54	30	3	Is there a reference missing here on the health effects of migration for Pacific Islanders? (Lewis, Nancy Davis, East-West Center)
818	11	29	54	30	3	Statement about Pacific Islanders migration. This sentence is not directly supported by prior or following sentences. Is there a reference to this statement? (UNITED STATES OF AMERICA)
819	11	29	54	30	3	The supposed link/relation between migration of people within the pacific rim countries and risky health behaviours as related to climate change is unsubstantiated by evidence and potentially misleading. Furthermore, migration and risky behaviours are more likely to be related to social factors such as class and educational background rather than exclusively climate. If such a linkage (between climate change and healthy risky behaviours) is to be included, this should be better explained and substantiated by robust evidence from peer reviewed sources. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
820	11	30	0	30	0	This section is good but the depth of description of each study is more extensive than many other sections. Review editors will need to help correct such imbalances across the full chapter. (UNITED STATES OF AMERICA)
821	11	30	13	0	0	Why do you say "Low-probability extreme climates" when you state in line 19 the increasing doubts on achieving a global warming below 2 degree Centigrade? This is not consistent. Therefore the term "low-probability" should be dropped. (Zacher, Winfried, Germanwatch)
822	11	30	13	0	0	This section should coordinate with chapter 16 discussion on limits to adaptation. (Chatterjee, Monalisa, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
823	11	30	13	0	0	Section 11.8: As mentioned in the context of the executive summary, Section 11.8 does not clearly support linking of projected temperatures under RCP8.5 with all of these impacts, and attempting loosely to make this connection distracts from the content presented here. For example, Figure 11-7 certainly does not directly support that health consequences of 4C increase would be more than twice those of a 2C increase, as currently implied. It would be more effective, in my opinion, to clearly present here what is known about health impacts and limits to adaptation at higher levels of warming, based on the available literature. The figure should be replaced by a reference to Cross-Chapter Box CC-RC. In addition, this section should be coordinated with and should cross-reference Chapter 19, where a broader set of impacts of large magnitude climate change are discussed. (Mastrandrea, Michael, IPCC WGII TSU)
824	11	30	13	32	14	the part only discribes the results of scenario RCP8.5,so I suggest adding the results of the other scenarios. (Liu, Bo, National climate center)
825	11	30	13	32	41	The title of this section should be changed. Much of the section focuses on the impacts of more distant and more extreme climate change, not on limits to adaptation. Temperature increases of more than 2 degrees celsius should certainly not be defined as high-end scenarios or low probability (p. 30, lines 20-22). We suggest renaming this section "Health impacts of long term, more advanced climate chnage" or something similar. Careful consideration should be given as to whether this section belongs in chapter 11 or would be more appropriately placed in the discussion of emergent and emerging health impacts in chapter 19. (UNITED STATES OF AMERICA)
826	11	30	15	30	17	While referring to 2030 or 2050 as a "short time horizon" is absolutely correct in a geological sense, with a recognition that climate impacts will continue long past said time-frame, it also seems to suggest an almost too conservative evaluation of associated health burdens. However, in a health care and medical science sense (unlike geological time), 35 years is a fairly long time, and the potential medical advances vs. health care infrastructure decline during those years also adds to the uncertainty of future health issues. Since the paragraph deals mostly with health impacts during high-end warming scenarios perhaps the focus should be on temperature and not time scale. (UNITED STATES OF AMERICA)
827	11	30	16	30	16	For consistency, please use degree symbol rather than 'degrees' (as on line 19). (Burt, Peter, University of Greenwich)
828	11	30	17	30	18	Citations should be provided for this statement, along with cross-reference to relevant key findings of working group 1. (Mach, Katharine, IPCC WGII TSU)
829	11	30	19	30	20	The findings of working group 3 should be considered for this statement. (Mach, Katharine, IPCC WGII TSU)
830	11	30	21	30	21	For consistency, please use degree symbol rather than 'degrees' (as on line 19). (Burt, Peter, University of Greenwich)
831	11	30	22	0	0	New et al. 2011 reference missing (Parker, David, Met Office Hadley Centre)
832	11	30	24	30	26	The figure does not support this statement. Revision must be considered accordingly. (Mach, Katharine, IPCC WGII TSU)
833	11	30	24	30	26	As I said in my comment on the section, Figure 11-7 does not directly support that health consequences of 4C increase would be more than twice those of a 2C increase, and confuses more than adds to the content presented in the section more generally. Rather than displaying this figure here, it would be preferable to refer to Cross-Chapter Box CC-RC and its discussion of the figure. (Mastrandrea, Michael, IPCC WGII TSU)
834	11	30	31	30	33	The title of the figure 11.7 it the correct one; please make a verification between this thie title and that one at page74 (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
835	11	30	31	30	33	Instead of providing this figure here, it would be preferable to cross-reference the cross-chapter box containing the graphic. (Mach, Katharine, IPCC WGII TSU)
836	11	30	32	30	33	The related topic in WGI is discussed in AR5 WGI Ch12.4.3.3. (Plattner, Gian-Kasper, IPCC WGI TSU)
837	11	30	33	30	33	Text missing (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
838	11	30	38	30	41	In place of "rapid and extreme levels of warming" it would be preferable to indicate more precisely what is meant. Citations to literature should be provided for statements in this paragraph. It also would be preferable to indicate more precisely what is meant by "over time"--what are the general time durations meant? (Mach, Katharine, IPCC WGII TSU)
839	11	30	43	30	46	Section 11.8.1.: The statement "Sherwood ---------- human population." is explanation of the danger of increasing the global temperature, I think it will be more suitable to mentioned in the section of vulnerability, and removed from adaptation sections, So, the sentence begins with "While transformative adaptation-----" to the end of the paragraph will be a continuation of the previous paragraph. (Saad-Hussein, Amal, National Research Center)
840	11	30	54	30	54	In this context 'sun' is a proper noun so should have a capital 'S'. (Burt, Peter, University of Greenwich)
841	11	31	2	31	7	Section 11.8.1.: The statement "Kjellstrom et al. (2009)b----------" to the last of the paragraph is explanation of the danger of increasing the temperature on the human productively, I think it will be more suitable to mention it in the section for vulnerability, and remove it from adaptation sections. (Saad-Hussein, Amal, National Research Center)
842	11	31	9	31	9	Delete 'Maloney and Forbes' in brackets (Burt, Peter, University of Greenwich)
843	11	31	11	31	11	It could be helpful to specify that this is temperature increase above preindustrial (or above global mean temperature for another timeframe). (Mach, Katharine, IPCC WGII TSU)
844	11	31	12	31	15	As on page 13, the concept of acclimatization is introduced but no explanation is provided on what it means. Here, 'unacclimatized individuals' and acclimatized individuals' concepts are used as well without any explanation on the meaning of such concepts. (NETHERLANDS)
845	11	31	13	31	13	'per' should be in italics. (Burt, Peter, University of Greenwich)
846	11	31	14	31	14	'per' should be in italics. (Burt, Peter, University of Greenwich)
847	11	31	18	31	32	Comments made here are for Chapter 11 authors' consideration. Specific data and examples are commented on below and are taken from the attached supprting document: Indigenous Health Impacts from Climate Change expert reviewer Blake Gentry. See pages 5-8, section: II. A Vector borne Diseases in Guatemala, Mexico, and the US /Mexico Border. 11.8.4. the status quo approach to the health impacts immigrant indigenous from Mexican states with higher ratios of indigenous peoples is not technically capable of measuring the effects of climate change on indigenous population. The lack of alternative strategies is of great concern for public health policy analysts attempting to determine the relative risk indigenous face to vector borne and infectious diseases, and impacts from regional warming that are increasing in Central America, NW Mexico, and the US Southwest.[1] [1] Increased health woes among climate change impacts , Melaine Lenart, the Climate Assessment for the Southwest, The University of Arizona, 23 january, 2013 http://www.climas.arizona.edu/feature-articles/january-2013 (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)

#	Ch	From Page	From Line	To Page	To Line	Comment
848	11	31	18	31	32	[Continued] Indigenous are more affected on a per capita basis than non-indigenous in Mexico for the health impacts described subsection on Dengue Fever 11.5.1.2 (11. p. 16 lime 14 -20). Given the disjuncture between indigenous socio-demographic trends and institutional responses, demographic references are therefore given to identify locations where increases in vector borne diseases are where indigenous coincide in time and space. It is the mobility of indigenous that is of particular concern; a mobility pushed by polices of corn importation that displaced small landholders from southern Mexico and the "opportunity" of migrating to work in commercial agricultural areas of Mexico's northern frontier[2] ([2] Desolution: Mexican Campesinos and Agriculature in the 21st Century, Sergio Zermeno, NACLA Report on the America's, Vol 41, no. 5, September/October 2008. 29) in the wake of NAFTA. More recently, the same dual dynamic affects Guatemalan indigenous in the face of the Central American Free Trade Agreement (CAFTA). One estimate places 500,000 displaced Mexican indigenous in the United states [3],([3] Displaced People: NAFTA's Important Product, NACLA Report on the America's, Vol 41, no. 5, September/October 2008, 23.) while another states "…the majority of the people crossing the Arizona-Mexico border are indigenous …" [4] ([4] The Fear of No Future, Guatemalan Migrants, Dispossession, and Dislocation. Linda Green, Anthropologica 51 (2009) 327.). The map below illustrates the regional differences in Mexico of smaller holder indigenous farmers' lands concentrated in southern states and the large industrial scale commercial farms in areas they migrate to in the north. (map: Coll-Hurtado, A y M, de L Godinez Calderon, UNAM: 2003) (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
849	11	31	18	31	32	[continued] Just as in Mexico, where internal migration is the aftermath of displacement by poverty and opportunity, in Guatemala, internal migration of 800,000[5] ([5] Patricia Bezares Cobar, 119.) migrants to coastal areas and coffee farms is the result of past and active land dispossession and increasingly, tropical storms , subsequent flooding, and outbreaks of vector borne diseases. Guatemalan indigenous migrants are also transitory, passing through Mexico to the same Mexico border regions and to the US as other non-indigenous migrants seeking rural agricultural work.[6] . ([6] Ibid.) In general, indigenous migration increases their vulnerability to extreme climate events and lowers their resource base to prepare for and adapt to climate change. Their dislocation is culturally damaging to the continuation of their customary defenses and knowledge of their natural resource base. With a few notable exceptions, most indigenous are unable to overcome the unrelenting challenges to reconstructing a social base to reproduce their cultures in their newly acquired locations. The health effects of climate change will intensify those challenges. (Blake, Gentry, Institution no 1: Gente de Iitoi A.C., non-profit in Mexico. Dir. of Health Services.)
850	11	31	19	31	26	Is there a time-scale associated with these projections? The paragraph almost reads as if there should be an associated graph showing future changes. (UNITED STATES OF AMERICA)
851	11	31	24	31	26	Does this mean that this last statement is a conjecture of the author team? Please support this with references to the literature, express formally as a finding of the author team with appropriate calibrated uncertainty language and literature support, or delete. (Mastrandrea, Michael, IPCC WGII TSU)
852	11	31	29	0	0	Section 11.8.2. The chapter team should carefully consider relevant material in Chapter 7 and provide more specific cross-reference to relevant sections throughout, ensuring consistency and harmonized assessment with regard to the key findings of that chapter. (Mach, Katharine, IPCC WGII TSU)
853	11	31	29	31	49	This section should also include the role of fisheries, aquaculture, and other food from the sea (such as artisanal harvest of whales and walrus in the Arctic as referenced previously in the chapter) as food supply and climate-related threats to production, harvest, availiability and nutritional quality. Fisheries are often looked to as additional food source but it is increasingly well recognized that they will not be able to provide enough protein for projected population needs, especially in light of climate change and related ocean acidification which will affect abundance, distribution, access and quality (including disease). (see coastal and ocean chapter) (UNITED STATES OF AMERICA)
854	11	31	31	31	33	Is this effect supported by literature with a broader geographic base? (Mach, Katharine, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
855	11	31	31	31	49	Section would have benefited from a more detailed and granular explanation of effects on human nutrition. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
856	11	31	31	31	52	The important recent systematic review by Knox et al. Environ. Res. Lett. 7 (2012) 034032 should be cited and discussed in this section. The paper brings together previous estimates of climate change impacts on major crop yields in Africa and Asia. (UNITED STATES OF AMERICA)
857	11	32	0	0	0	Section 11.6.4 (page 26) and Section 11.8.4 (page 32) In two places in Chapter 11, it would be helpful to make the crosswalk from Chapter 11 to related materials in Chapter 12. See specifically, Section 11.6.4 (Violence and population displacement) and Section 11.8.4. (Health consequences of displacement, migration, and social conflict) should both have a pointer in the text to Chapter 12, Section 12.5 (Dimensions of conflict and vulnerability to climate change). (UNITED STATES OF AMERICA)
858	11	32	0	18	0	Section 11.8.4: it would be helpful to make the crosswalk from Chapter 11 to related materials in Chapter 12. See specifically, Section 11.6.4 (Violence and population displacement) and Section 11.8.4. (Health consequences of displacement, migration, and social conflict) should both have a pointer in the text to Chapter 12, Section 12.5 (Dimensions of conflict and vulnerability to climate change). (UNITED STATES OF AMERICA)
859	11	32	4	32	4	The concepts northwards extensions and vectors are quite technical. Suggest expanding a bit more on these concepts. (CANADA)
860	11	32	4	32	6	Suggested to include the references Lindgren et al., 2012 and Jaenson et al., 2012 (Matthies, Eva Franziska, Consultant)
861	11	32	6	32	6	It would be preferable to use more specific wording here in place of "foretaste." (Mach, Katharine, IPCC WGII TSU)
862	11	32	13	32	14	Section would have benefited from a more detailed explanation of the effects of raised temperatures on the malaria parasite with -for example- some indications of the temperatures and their effects on various strains of malaria. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
863	11	32	18	0	0	Section 11.8.4. The chapter team should very carefully consider the assessment findings of chapters 19, 12, and 3 for this section, ensuring consistency and harmonized assessment and providing specific cross-references to relevant chapter sections. (Mach, Katharine, IPCC WGII TSU)
864	11	32	18	0	0	Section 11.8.4: This section must coordinate with Chapters 12 and 19, which assess this literature comprehensively, and cross-reference the conclusions drawn by those chapters. (Mastrandrea, Michael, IPCC WGII TSU)
865	11	32	20	32	32	mention the reference: WBGU, 2007 (Matthies, Eva Franziska, Consultant)
866	11	32	31	32	32	If retained, this statement must be supported very precisely and robustly by available literature. It does not seem such support can be provided on the basis of available literature. (Mach, Katharine, IPCC WGII TSU)
867	11	32	31	32	32	Is this last statement is a conjecture of the author team? Please support this with references to the literature, express formally as a finding of the author team with appropriate calibrated uncertainty language and literature support, or delete. (Mastrandrea, Michael, IPCC WGII TSU)
868	11	32	35	0	0	Section 11.8.5. This section should be strengthened. If it is not possible to do so, its deletion should be considered. (Mach, Katharine, IPCC WGII TSU)
869	11	32	35	32	41	Reliance on Infrastructure is a good addition but it does not go far enough. This begins to get at vulnerability of more developed countries which tends to be overlooked. For instance, if a country has adequate water sanitation systems for current threats, will that also suffice in future impact scenarios. Institutional failures, either infrastructure or decision-making bodies that control infrastructure are at the core of adaptive capacity and resilience, but that point is lost in this section. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
870	11	32	37	32	41	Section 11.8.5 is highly speculative about a distant future. The reference given is about a past event which does not support the speculative nature of the section. At the very least, the text should just state that present power outages are associated with health impacts rather than speak about "what once was an inconvenience" (not at all clear what this means? when? the 2003 power outage and 90 associated deaths?) and then offer the opinion that greater dependence of systems on water and electricity for more vulnerable populations may lead to even more serious health hazards. (UNITED STATES OF AMERICA)
871	11	32	44	0	0	The whole chapter on "Co-benefits" is missing out on an aspect which is important for medical personnel and therefore for the chapter on health. The "co-benefits" here refer to a line of thought where mitigation actions done for the sake of reducing climate change result in additional benefits for health. It should be pointed out, however, that for some aspects the reverse is true as well: from a medical point of view one can and should advocate - for more active transport and/or - for reduction in the consumption of meat and animal protein and/or - for reduction of biofuel use in the house just for health reasons and make clear that this would have "co-benefits" for climate mitigation. In different contexts different lines of reasing have different weights. (Zacher, Winfried, Germanwatch)
872	11	32	44	33	3	Five categories of co-benefits are provided and the authors chose to provide detail on two. It is not clear what criteria was used to omit details on the other three which are also quite important, namely Decrease in ruminant meat consumption; Increase active transport; Increase urban green space. (Corvalan, Carlos, Pan America Health Organization / World Health Organization)
873	11	32	44	33	7	Section 11.8.5: A justification for the more detailed discussion of only 2 of the 5 main co-benefits categories should be provided. (UNITED STATES OF AMERICA)
874	11	32	44	36	44	There are other co-benefits besides those mentioned here and this section should be contracted in current content but expanded to include at least discussion of co-benefits of enhance public health surveillance that is linked to appropriate climate and environmental data collection, and to improved or sustained high quality water sanitation systems. Built environment is also missing from the chapter and could be included here. (UNITED STATES OF AMERICA)
875	11	32	46	32	54	In my perception point 2) increase access to reproductive health care does not entirely correspond to the definition of health co-benefits as given at the beginning of the parapgraph. Increased access to reproductive health care has primarily the aim to benefit health and reduction of CO2 emissions could be seen as a co-benefit. See also comment for page 4, line 17 above. (Matthies, Eva Franziska, Consultant)
876	11	32	54	33	1	“Geoengineering” should not be considered as “side effects of mitigation measures”. In Annex I “Glossary” to WGIII report the definition of “geoengineering” is given: “A set of proposed methods and technologies that aim to deliberately alter the climate system in order to alleviate the overall impacts of climate change”. See also the definition of “geoengineering” in the next chapter of this report (Chapter 12, page 23, line 23). (Ryaboshapko, Alexey, Institute of Global Climate and Ecology)
877	11	32	54	33	2	It is not advisable to subsume ‘geoengineering’ under ‘mitigation’. Please reformulate by drawing a clear distinction between them or, in case the downsides of mitigation should not be emphasized here, by focusing solely on geoengineering (consistency within WGII AR 5: A clear distinction between the two has already been drawn in chapter 19, pg. 30, lines 5-11). (GERMANY)
878	11	32	54	33	2	The concept of 'geoengineering' is used here as a mitigation measure. Geoengineering is not mitigation! CDR geoengineering might be by IPCC's definition, but definately not SRM proposals! (NETHERLANDS)
879	11	33	2	33	2	Chapter details missing, and 'chapter' should have a capital 'C'. (Burt, Peter, University of Greenwich)

#	Ch	From Page	From Line	To Page	To Line	Comment
880	11	33	10	33	28	This section does not discuss long-range transport of air pollution and its effect on health. Paper by Casper-Anenberg et al. (2009), Intercontinental impacts of ozone pollution on human mortality, Environ. Sci. & Technol., 43: 6482-6487 discusses this - reduction of emissions in (say) North America benefits Europe as well as America, as less pollution is transported. See also A.M. Fiore et al. (2009) Multi-Model Estimates of Intercontinental Source-Receptor Relationships for Ozone Pollution, J. Geophys. Res., 114, D04301, doi:10.1029/2008jd010816 (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
881	11	33	10	35	43	Consider adding: Increased use of wind, solar, tidal, wave and geothermal energy would reduce emissions of CO2 and air pollutants, providing benefits for climate and health (Jacobson 2009, Review of solutions to global warming, air pollution, and energy security). (UNITED STATES OF AMERICA)
882	11	33	10	35	43	Scetion 11.9.1: This section is long compared to the rest of the chapter, especially given that there was no text at all devoted to 3 of the 5 major categories of co-benefits. (UNITED STATES OF AMERICA)
883	11	33	10	35	44	The reduction of co-pollutants section takes up way too much valuable page space and is not easily digestable in its current construct. Reduce overall length so it is proportionally scaled to other co-benefits. (UNITED STATES OF AMERICA)
884	11	33	21	33	21	The sentence should be rephrased for more clarity: "In many parts of the world, household fuel (poorly combusted biomass and coal) is responsible for a substantial percent of primary outdoor fine particle pollution, the figure is between a sixth and a quarter in China and India for example, indicating that reductions in emissions form household sources could also yield co-benefits through outdoor pollution pathway." (NETHERLANDS)
885	11	33	25	33	0	Insert this sentence at line 25, after the end of the sentence: "Some studies are conducted by Ev-K2-CNR in Sagarmatha National Park, on the Nepalese mountainside of Everest, with the aim to improve the management of its many-sided ecosystem, significantly influenced by climate change and increase of human activities and tourism, as well as by practices that are harmful both to human health and to our environment (e.g. burn up kerosene or animal excrements in order to obtain heat). EV-K2_CNR has conducted some researches (Proietti et al., 2012) focused on designing a residential unit that meets population needs, in terms of simplicity of realization, replicability, use of local materials, environmental compatibility and exploitation of available renewable energies. - Additional reference full citation: S. Proietti, P. Sdringola, E. Vuillermoz, U. Desideri, “Feasibility study and design of a low-energy residential unit in Sagarmatha Park for environmental impact reduction of high altitude buildings”, in: ECOS 2012 - The 25th International Conference on Efficiency, Cost, Optimization and Simulation of Energy Conversion Systems and Processes (Perugia, June 26th-June 29th, 2012), edited by Umberto Desideri, Giampaolo Manfrida, Enrico Sciubba. Firenze University Press, Firenze, 2012. ISBN 978-88-6655-322-9 (Proietti, Stefania, University of Perugia)
886	11	33	27	33	28	Citations or specific cross-reference in support of this statement should be provided. (Mach, Katharine, IPCC WGII TSU)
887	11	33	48	33	49	A more qualified statement should be considered here. Does this statement pertain equally around the globe, and/or on what definition of poverty does it depend? (Mach, Katharine, IPCC WGII TSU)
888	11	34	1	34	36	Bioenergy is typically worse than fossil fuel. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
889	11	34	6	34	19	Do the statements on lines 6-7 and 18-19 describe the same observed outcome? It would be helpful to clarify for the reader whether they refer to the same or different observation. (Mach, Katharine, IPCC WGII TSU)
890	11	34	33	34	36	Are carcinogens also produced by incomplete combustion of some types of fuel? If so, they would pose a significant health hazard. (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
891	11	34	34	34	35	Please provide a specific reference to WGI, e.g. WGI Ch6. (Plattner, Gian-Kasper, IPCC WGI TSU)
892	11	34	35	34	36	Reference style needs correcting, and references should be in chronological order. (Burt, Peter, University of Greenwich)
893	11	34	41	34	44	Please expand this section (NETHERLANDS)

#	Ch	From Page	From Line	To Page	To Line	Comment
894	11	34	41	34	44	Citations should be provided for these statements. (Mach, Katharine, IPCC WGII TSU)
895	11	34	46	34	51	A more recent and very relevant reference for this section is: West, J.J., A.M. Fiore, and L.W. Horowitz (2012) Scenarios of methane emission reductions to 2030: abatement costs and co-benefits to ozone air quality and human mortality , Climatic Change,114, 441-461 (Kentarchos, Anastasios, European Union DG Research, Directorate Environment Climate Change & Environmental Risks Unit)
896	11	34	48	35	49	Please provide a specific reference to WGI. (Plattner, Gian-Kasper, IPCC WGI TSU)
897	11	35	1	35	1	'et al.' should be in italics, and second 'Lefohn et al.' reference in brackets deleted. (Burt, Peter, University of Greenwich)
898	11	35	3	35	3	Delete reference. (Burt, Peter, University of Greenwich)
899	11	35	5	35	5	Put references in alphabetical order (Burt, Peter, University of Greenwich)
900	11	35	11	0	0	Particle(s) should be plural. (UNITED STATES OF AMERICA)
901	11	35	13	35	13	Chapter details missing, and 'chapter' should have a capital 'C'. (Burt, Peter, University of Greenwich)
902	11	35	13	35	13	Please refer to AR5 WGI Ch6. (Plattner, Gian-Kasper, IPCC WGI TSU)
903	11	35	16	35	43	None of these studies supports the high confidence you profess in the summary. These papers ask the wrong question -- what are the health benefits of greenhouse gas emission reduction? Reducing air pollution via greenhouse gases is expensive (in dollars paid per life saved). If instead you ask "given a fixed budget, what is the best mix of air pollution and greenhouse gas emission reduction?" you would find that reducing-air-pollution-via-greenhouse-gases is so clumsy that you eat up the budget that could have been used for going after air pollution directly, so that the health impacts of air pollution are higher than they could have been. (Tol, Richard S.J., Vrije Universiteit Amsterdam)
904	11	35	16	35	44	Section 11.9.1.5: This section is missing a detailed modeling co-benefits study from US. Grabow et al. linked state-of -science automobile emissions model, with air pollution (CMAQ) models, to health outcomes (EPA BenMAP model), to show mortality and morbidity savings by low-carbon transporation. The study goes further to quantify an "active transport" (by bicycle) scenario. It is a missed opportunity (and imbalance) to cover 3 studies by the same research group (from 2009 Lancet series) to the exclusion of this directly relevant co-benefits analysis from a different research team from the US. Grabow et al. is merely listed in table 11.4 and in reference section, but the quantitative information that directly addresses co-benefits are not utilized is this section of assessment, and I believe a missed opportunity. (UNITED STATES OF AMERICA)
905	11	35	19	35	19	Are the estimated benefits described in this sentence for 2030? It would be helpful to specify this more explicitly. (Mach, Katharine, IPCC WGII TSU)
906	11	35	46	0	0	para 11.9.2 - see chapterl comments part 2) (ITALY)
907	11	35	46	36	3	General comment on section 11.9.2. The authors should try to explain more clearly the role of slowed population growth on emissions and the limitations of some current studies. The reduction in emissions would logically be much greater in those societies with currently high per capita emissions than in those with low per capita emissions, but the need for family planning tends to be greatest in latter rather than former category and it would be useful for the authors to reflect this potential dichotomy (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
908	11	35	46	36	44	Although this section does relate to the prior sections, it is not apparent how this directly relates to "Impacts, adaptation & vulnerability" to climate change. If anything, this is a WG3 (i.e., mitigation) issue, so the authors should strongly consider removing this section. (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
909	11	35	46	36	44	The section on reproductive health should not be included in the discussion of cobenefits of mitigation strategies. Contraception and decreased fertility are not primary climate mitigation strategies. They are primary health and development strategies that have potential and controversial benefits for climate change mitigation. As such, they should either not be included In the current chapter framework, or they should have a completely separate section devoted to climate benefits of primary health strategies and the discussion should focus on the literature demonstrating a climate benefit rather than the current discussion of the health benefits of reproductive health strategies. Any inclusion of reproductive health interventions as climate mitigation strategies should be consistent with WG3 discussion of this topic. If reproductive health interventions are not considered an option for climate mitigation strategies in WG3, the authors should consider whether a discussion of climate co-benefits of health strategies is appropriate in this chapter of WG2. (UNITED STATES OF AMERICA)
910	11	35	49	35	49	Please clarify this reference to WGI. (Mastrandrea, Michael, IPCC WGII TSU)
911	11	36	1	36	1	'per capita' should be in italics. (Burt, Peter, University of Greenwich)
912	11	36	6	36	25	Section 11.9.2.1.: There is no clear relationship between Birth and pregnancy intervals and climate change, it is better to remove it from this draft. (Saad-Hussein, Amal, National Research Center)
913	11	36	8	36	8	medium confidence' should be in italics. (Burt, Peter, University of Greenwich)
914	11	36	9	36	9	Sense not clear. Do you mean birth intervals between 19 and 25 months, or any birth interval less than 25 months? I presume the shortest birth interval can be 9 months? (Burt, Peter, University of Greenwich)
915	11	36	11	36	11	Reference style needs correcting. (Burt, Peter, University of Greenwich)
916	11	36	14	36	14	Delete reference. (Burt, Peter, University of Greenwich)
917	11	36	28	36	44	Section 11.9.2.2.: There is no clear relationship between the Maternal age at birth and climate change, it is better to remove it from the draft (Saad-Hussein, Amal, National Research Center)
918	11	36	31	36	31	Do you really mean 'fertilty'. Isn't it their abilty to conceive (which does not necessarily have a fertility implication)? (Burt, Peter, University of Greenwich)
919	11	36	34	36	39	This paragraph is awkwardly constructed and confusing. (Lewis, Nancy Davis, East-West Center)
920	11	36	47	0	0	Section 11.10. This section should be deleted, with integration of the conclusions into the corresponding sections of the chapter or into the executive summary. For each statement, specific line-of-sight references should be provided to the supporting chapter sections. Additionally, calibrated uncertainty language should be used to characterize the author team's degree of certainty in each conclusion. (Mach, Katharine, IPCC WGII TSU)
921	11	36	47	0	0	Section 11.10: The purpose of this section is unclear, and it confusingly overlaps with the executive summary of the chapter. My recommendation would be to delete the section, ensuring that these conclusions are captured in the corresponding sections and the executive summary. If retained, these statements must be assigned calibrated uncertainty language. (Mastrandrea, Michael, IPCC WGII TSU)
922	11	36	53	0	0	Do you want to say that "negative health impacts from climate change can be avoided"? (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
923	11	36	53	0	0	You say: "…can be avoided…" Should read: "… can be achieved…" (Zacher, Winfried, Germanwatch)
924	11	36	53	0	0	Statement contradicts chapter text about extreme heat and tolerance levels of heat. (UNITED STATES OF AMERICA)
925	11	36	53	0	54	according to this sentence all structural and no structural preventive measures, including early warnings are inconsistent. It's suggested to rephrase it and include term of environmental health (ITALY)
926	11	36	53	36	54	This sentence is unclear. Some/many of the health impacts from climate change can be avoided through provision of basic health improvements to the world's poor popoulations. (Lewis, Nancy Davis, East-West Center)

#	Ch	From Page	From Line	To Page	To Line	Comment
927	11	37	5	0	0	Do "these advances" refer to early warning systems and disaster management? (Koppe, Christina, Deutscher Wetterdienst (German Meteorological Service))
928	11	37	5	0	0	Reflecting on the available - and also given by you - evidence on the subject you understate the health effects by saying "..leading to a likely increasing net health impact …" This should instead read: "… leading likely to a big net health impact…" (Zacher, Winfried, Germanwatch)
929	11	37	5	37	5	Add "negative" before "health". (net negative health) (Stouffer, Ronald, Geophysical Fluid Dynamics Laboratory/NOAA)
930	11	37	9	0	12	ibidem (ITALY)
931	11	37	11	0	0	While adaptation measures in other sectors can have potential health benefits or harms, there was no discussion of adaptation co-benefits or harms in the preceding paragraphs, so it is recommended that the word "adaptation" be deleted. Reproductive health may have a potential adaptation co-benefit for other types of family or community resilience, but this is a climate adaptation co-benefit of a health strategy, not the other way around. Moreover, there was no data-driven analysis cited to support the climate adaptation co-benefit of reproductive health strategies. (UNITED STATES OF AMERICA)
932	11	37	15	37	15	IPCC does not provide recommendations (maybe rename instead e.g. into 'research needs' or 'knowledge gaps'). (GERMANY)
933	11	37	15	37	39	It would be useful to add in this section some more specific research gaps/ needs with examples (as partly already scattered in this and other chapters). (GERMANY)
934	11	37	15	37	39	Several research needs are not articulated and should be listed here including: 1) the need for sustained engagement of cross-discplinary teams of scientists, working with public health decision makers to identify temporally and spatially compatible data needs, implement appropriate surveillance, monitoring, and observational systems to collect the data, analyze and build models for use in near term and future scenario development. (Numerous NRC reports including -Decision-making under uncertainty, IOM Roundtable Report on Linking Sustainable Development and Health); 2) improved understanding of the health outcomes and regions most vulnerable to complex emergencies; 3) development of health models for use in projection scenarios; and better understanding of the complex disease pathways for vector-borne, water-borne and zoonotic diseases. (UNITED STATES OF AMERICA)
935	11	37	17	37	19	More balanced description of the relevant uncertainties could be provided here. (Mach, Katharine, IPCC WGII TSU)
936	11	37	17	37	39	This section leads with the ideal but unlikely scenario of alleviating world poverty, and thus the tone implies a lack of concern or urgency for addressing the health impacts of climate. Turn the tone around to suggest proactive engagement of policy makers and scientists to address the concerns outlined in the chapter, including emerging risks not yet known or understood. Planning for and adapting to these risks can have co-benefits including contributing to poverty aleviation. And again, the role of water sanitation and hygiene or simply access to clean water is not mentioned and underrepresented throughout the chapter. (UNITED STATES OF AMERICA)
937	11	37	27	37	39	Research recommendations: possibly to be included here global research priorities: assessing the risks; identifying effective and cost-effective interventions; co-benefits and co-harms of adaptation and mitigation measures; improving decision support; estimating the costs; (Hosking J, Campbell-Lendrum D (2012). How Well Does Climate Change and Human Health Research Match the Demands of Policymakers? A Scoping Review. Environmental Health Perspectives, 120(8):1076–1082) The paper also points to the need of quantitative studies and research in most developing regions. The WHO Framework for Action suggests improving the sharing of experience and best practice, please see WHO Regional Office for Europe (2010) Protecting health in an environment challenged by climate change: European Regional Framework for Action, Copenhagen, Denmark, availabe at: http://www.euro.who.int/__data/assets/pdf_file/0005/95882/Parma_EH_Conf_edoc06rev1.pdf (Matthies, Eva Franziska, Consultant)

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938	11	37	28	37	28	Note the WHO/DFID (2010) reference does not appear in the reference list. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)
939	11	37	44	0	0	FAQ 11-1 Using the term 'thought' could imply that perceived impacts of climate change are different from actual. However, the answer focuses on the different ways in which climate change is expected to affect human health. Hence, authors should reconsider the use of the term 'thought' in their FAQ. It may be useful to merge FAQs 1-3 here to highlight that impact in each of these categories may have both negative and positive implications depending on specific communities, places. If possible some examples may be added as well to illustrate the differences. (Chatterjee, Monalisa, IPCC WGII TSU)
940	11	37	45	37	45	Insert colon after 'health'. (Burt, Peter, University of Greenwich)
941	11	37	51	0	0	FAQ 11-2 It may be useful to merge FAQs 1-3 here to highlight that impact in each of these categories may have both negative and positive implications depending on specific communities, places. If possible some examples may be added as well to illustrate the differences. (Chatterjee, Monalisa, IPCC WGII TSU)
942	11	37	51	37	54	A proper argumentation is lacking in the body of the chapter for this statement. There is evidence that very cold winters might be more frequent due to changes in the north atlantic oscillation: http://www.pnas.org/content/109/11/4074 ; http://www.guardian.co.uk/environment/2012/mar/14/met-office-arctic-sea-ice-loss-winter ; http://onlinelibrary.wiley.com/doi/10.1002/asl.356/abstract;jsessionid=B2A84E9EB6367BBEDCE65507A6E8DB80.d02t03?deniedAccessCustomisedMessage=&userIsAuthenticated=false (NETHERLANDS)
943	11	37	53	0	0	Delete "lower levels of vector-borne disease", since this pronouncement cannot be found in chapter 11.5. as such. (GERMANY)
944	11	37	53	37	54	Does this statement hold across all scenarios of climate change and time frames? It would be helpful to indicate this more precisely. (Mach, Katharine, IPCC WGII TSU)
945	11	38	2	0	0	FAQ 11-3 It may be useful to merge FAQs 1-3 here to highlight that impact in each of these categories may have both negative and positive implications depending on specific communities, places. If possible some examples may be added as well to illustrate the differences. (Chatterjee, Monalisa, IPCC WGII TSU)
946	11	38	3	0	0	Delete "not" (…not probably not…). (GERMANY)
947	11	38	3	0	0	You state: "..will not probably not…" Should read: " … will probably not…" (Zacher, Winfried, Germanwatch)
948	11	38	3	38	7	Delete first sentence and replace with language more reflective of those with increased vulnerability and little adaptive capacity are at highest risk,and include need for ability to address surprises. As it stands, the tone is dismissive of the potential emerging risks. (UNITED STATES OF AMERICA)
949	11	38	9	0	0	FAQ 11-4 The answer could also provide the limits of these strategies. (Chatterjee, Monalisa, IPCC WGII TSU)
950	11	38	9	38	12	FAQ 11.4 An argument could be made (although I am not going to make it) that reducing poverty might be more important for health globaly that public health and medical interventions. (Lewis, Nancy Davis, East-West Center)
951	11	38	9	38	12	FAQ 11.4: Add "The most effective adaptation measures for health in the immediate term, therefore, are programs that extend basic public health measures and essential health services, increase capacity for disaster preparedness and response." (compare page 3, line 25-27) (GERMANY)

#	Ch	From Page	From Line	To Page	To Line	Comment
952	11	38	9	38	12	Clarify the potential co-benefits of many adaptation strategies, and the pursuit of those as primary importance, such as improved public health surveillance, better heat health and other early warning systems with tightly coupled public health and medical response strategies. It is not just accelerating public health and medical interventions, which could be interpreted as just 'develop better vaccines and use cook stoves.' (UNITED STATES OF AMERICA)
953	11	38	9	38	12	Consider deleting reducing poverty is the next most important thing for health globally or at least consider adding ensuring access to clean water. (UNITED STATES OF AMERICA)
954	11	38	14	0	0	FAQ 11-5 Some examples where these have been implemented and found effective should be mentioned here. (Chatterjee, Monalisa, IPCC WGII TSU)
955	11	38	20	38	21	Conclusion that access to reproductive healthservices slows energy demand growth is not substantiated by the text of the chapter and should be removed from the FAQs. (UNITED STATES OF AMERICA)
956	11	38	42	38	43	Altizer et al reference looks incomplete - no journal name. (Parker, David, Met Office Hadley Centre)
957	11	48	50	49	32	References out of alphabetical order (in Scottish surnames 'Mac' and 'Mc' are treated the same, therefore these should start on line 48). (Burt, Peter, University of Greenwich)
958	11	53	1	53	4	Incomplete reference no name of journal for the article cited. (AUSTRALIA)
959	11	53	11	53	12	Incomplete reference no name of journal for the article cited. (AUSTRALIA)
960	11	53	24	53	24	Incomplete reference no name of journal for the article cited. (AUSTRALIA)
961	11	55	50	55	50	The reference of Wilkinson et al 2007 b may be shifted before Wilkinson et al 2009 (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
962	11	58	0	0	0	Table-11.1 :Under malaria disease, work of Dhiman et al 2011 may also be added. Key reference and outcome of study already mentioned above for page 28. References mentioned in the last column for malaria disease, did not cover Asia. (Dhiman, Ramesh C, National Institute of Malaria Research (ICMR))
963	11	58	0	0	0	Table 11-1 is confusing. The column on climate sensitivity and confidence needs to be re-worked or just deleted. Also, change title to include infectious diseases and add water borne and air borne diseases, for at least those highlighted in the chapter. (UNITED STATES OF AMERICA)
964	11	58	0	0	0	Table 11-1: Change table title as these are not all vector borne diseases. Add a row before Malaria to indicate that malaria and dengue are mosquito-borne diseases. (UNITED STATES OF AMERICA)
965	11	58	0	0	0	Table 11-1: It is unclear why this table is entitled Vector Borne Diseases but includes multiple non-vector borne infectious diseases. Would either just name table infectious diseases and have categories or have a separate table for non VBDs. I find the notations in the column climate sensitivity and confidence extremely hard to understand and suggest the authors come up with something that works better visually. The concept of "at risk" is undefined and clearly means very different things for TB (presumably "at risk" here means TB carriers) and for malaria and dengue (presumably at risk refers to geographic risk of exposure?). (UNITED STATES OF AMERICA)
966	11	58	0	0	0	Table 11-1: The table caption needs to be comprehensive to explain what the table is showing. (Estrada, Yuka, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
967	11	58	0	0	0	Table 11-1. A thorough caption should be provided to introduce the table. For example, is the timeframe the same for each estimate provided? (If not, the timeframe should be specified for each.) Further description of each category used within the sensitivity and climate effects entries would be very helpful as well. (Mach, Katharine, IPCC WGII TSU)
968	11	58	0	58	0	Table 11.1, the reference Kovats et al, 2013 is missing in the references section of this chapter; it should be included (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
969	11	59	0	0	0	Table 11-2, line 2-3: Please spell out PM2.5 once in the table and ensure that it's also reflected in the glossary / acronyms. (GERMANY)
970	11	59	0	0	0	A bigger Font size may be used (if possible) in Table 11-2 to make it easily readible by increasing table size vertically (Manzoor, Naeem, Global Change Impact Studies Centre (GCISC))
971	11	59	0	0	0	Table 11-2: Add other studies, e.g. Jacobson 2008: On the causal link between carbon dioxide and air pollution mortality (UNITED STATES OF AMERICA)
972	11	59	0	0	0	Table 11-2: If possible it would be great to have this table for other disease categories besides just air pollution. (UNITED STATES OF AMERICA)
973	11	59	0	0	0	Table 11-2: Projected meteorological changes alone are expected to increase ground-level ozone by an average of 6.2 ppb (under low-growth scenarios) to 17.0 ppb (under high growth scenarios) in the summer months by the end of the current century (Holloway et al. 2008). This would translate into an associated three- to eight-fold increase in the number of air exceedances of the NAAQS for ozone. (UNITED STATES OF AMERICA)
974	11	60	0	0	0	This table has no description for what it is communicating (AUSTRALIA)
975	11	60	0	0	0	Table 11-3 Please spell out NCAR somewhere. (GERMANY)
976	11	61	0	0	0	Table 11-4 - please summarise text for first two rows of table, rather than have reader refer back to the text. The point of a table is to summarise information in a clear form. (AUSTRALIA)
977	11	61	0	0	0	Table 11-4 Would be good to specify the text referred to (paragraph 11.9.1.1. & 11.9.1.2. & 11.9.2.). (GERMANY)
978	11	61	0	0	0	Table 11-4 - references are in the wrong rows - Friel and McMichael should be in ruminant meat section. It is not clear why the qualifier "may" is in the ruminant meat row and not in others. (UNITED STATES OF AMERICA)
979	11	61	0	0	0	Table 11-4: Add: Increased use of wind, solar, tidal, wave and geothermal energy would reduce emissions of CO2 and air pollutants, providing benefits for climate and health (Jacobson 2009, Review of solutions to global warming, air pollution, and energy security). (UNITED STATES OF AMERICA)

#	Ch	From Page	From Line	To Page	To Line	Comment
980	11	61	0	0	0	Table 11-4: Friel and Dangour article is in the wrong section. This table mixes "co-benefit" studies that look at climate change as an issue with "risk factor" studies that look at health impacts of modifying relevant exposures or behaviors, but not in the studied context of climate change actions. This should be clarified and these papers differentiated. The table could be more informative- e.g., decreased red meat consumption has other benefits in addition to reduced CH4 production (transport, refrigeration costs). (UNITED STATES OF AMERICA)
981	11	61	0	0	0	Table 11-4, second line: greater access to reprodcutive health services - please see comment above on the defintion of health co-benefits (Matthies, Eva Franziska, Consultant)
982	11	61	0	0	0	Table 11-4 Authors should fill the cells with key messages from discussion. It may be also useful to glean information from other chapters on experience of co-benefits and provide it here. (Chatterjee, Monalisa, IPCC WGII TSU)
983	11	61	0	0	0	Table 11-4: It is odd to see the "see text" entries in this table--is there no way to summarize what is discussed about each topic in the table? (Mastrandrea, Michael, IPCC WGII TSU)
984	11	62	0	0	0	Figure 11-1: It is not clear from this Figure how climate change acts against human development. Presumably there could be another panel for a scenario much better than "Business as usual", showing steeper declines in anticipated child mortality? (Parker, David, Met Office Hadley Centre)
985	11	62	0	0	0	Fig. 11-1 - it is mentioned that climate-sensitive causes are included; but it doesn't seem to be quite clear whether climate change impacts are already factored into the projections or would still add on. (GERMANY)
986	11	62	0	0	0	Figure 11-1: Show actual, not projected mortality for prior years, e.g. 6.9 million in year 2011 (WHO/GHO). Suggest showing actual mortality for prior years with a path to MDG target and a pie chart with causes of mortality for a recent year instead. IGME (referenced in the figure caption) states 7.6 million mortality for 2010 - where is that shown on this figure? (UNITED STATES OF AMERICA)
987	11	62	0	0	0	Figure 11-1 Authors may wish to add projections in child mortality under other scenarios for comparison. Moreover, the figure could be improved by adding indicators like % deaths due to factors that are affected by climate change. (Chatterjee, Monalisa, IPCC WGII TSU)
988	11	62	0	0	0	Figure 11-1. Does the literature support the title of this figure ("climate change acts against human development")? Very rigorous support of all descriptions here should be ensured. (Mach, Katharine, IPCC WGII TSU)
989	11	63	0	0	0	Figure 11-2. Why is there a double dip? If this cannot be causally explained, it is likely that the confidence ranges are too narrow, for example owing to dependency (the effects of one or two single events with widespread effects like epidemic or war) within the data sample. The confidence limits are in fact wider in Diboulo et al. 2012 Figure 4 thann in this plot. (Parker, David, Met Office Hadley Centre)
990	11	64	0	0	0	This graphic does not mean or add anything to the information in the report. (AUSTRALIA)
991	11	64	0	0	0	Figure 11-4: Within the figure the points of time when the application of insecticides (page 16, line 25) took place should be marked. (GERMANY)

#	Ch	From Page	From Line	To Page	To Line	Comment
992	11	64	0	0	0	Figure 11-3 is very simple and essentially repeats the information provided in the text. Authors are encouraged to use a figure if it can add or display a dimension that is complicated and difficult to comprehend via text. This figure should be developed futher to add additional layers of information. (Chatterjee, Monalisa, IPCC WGII TSU)
993	11	64	0	0	0	Figure 11-4 Authors may wish to add a sentence in the figure caption explaining the main take away point. (Chatterjee, Monalisa, IPCC WGII TSU)
994	11	64	0	0	0	Figure 11-3: The caption does not really describe what the figure is illustrating. (Estrada, Yuka, IPCC WGII TSU)
995	11	64	0	0	0	Figure 11-4: Y-axis titles needs to include units. It would be helpful for the audience if the caption includes what is the main message of this figure. It may increase the readability of this figure if environmental information and disease factors are presented in a separate panel. (Estrada, Yuka, IPCC WGII TSU)
996	11	64	0	0	0	Figure 11-3. A more extensive caption should be provided to aid interpretation of the figure. As part of this, the footnotes should be moved to the caption with further context provided for them. (Mach, Katharine, IPCC WGII TSU)
997	11	64	0	64	0	Figure 11.3 The coulor of the arrows (white) should be changed in another colour more visible (black or blue) (NDIONE, Jacques Andre, Centre de Suivi Ecologique)
998	11	65	0	0	0	Figure 11-5 is not clear whether the first diagram (d) is considered as an earlier period and diagram (a) is later or the opposite, please I appreciate to clearify it more either in the comment on the figure or by correction of the symbol (d) to become (a) and (a) to change to be (b). (Saad-Hussein, Amal, National Research Center)
999	11	65	0	0	0	Figure 11-5 is difficult to read. Quality of the figure has to be improved. TSU can help. (Chatterjee, Monalisa, IPCC WGII TSU)
1000	11	65	0	0	0	Figure 11-5. It would seem preferable to overlay the 2 panels of this figure. Additionally, further context could be provided within the caption to explain how the projections within the 2 panels differ. (Mach, Katharine, IPCC WGII TSU)
1001	11	65	0	0	0	Figure 11-6. These scenarios of climate change and other assumptions supporting the analysis depicted in this figure should be specified. (Mach, Katharine, IPCC WGII TSU)
1002	11	65	0	0	0	Figure 11-5: It seems that these panels could be overlaid, and this presentation would both be more compact and allow clearer comparison of the red and blue areas. (Mastrandrea, Michael, IPCC WGII TSU)
1003	11	65	0	0	0	Figure 11-6: Are both panels needed? The right panel shows both the blue and green areas, so it is unclear why the left panel is needed. (Mastrandrea, Michael, IPCC WGII TSU)
1004	11	66	0	0	0	Figure 11-8 is not related to climate change, it is better removed from the draft (Saad-Hussein, Amal, National Research Center)
1005	11	66	0	0	0	Figure 11-7 This figure is discussed in detail in the regional climate chapter 21. It may be efficient to just cross ref? (Chatterjee, Monalisa, IPCC WGII TSU)

#	Ch	From Page	From Line	To Page	To Line	Comment
1006	11	66	0	0	0	Figure 11-7: the author team may wish to include a sentence in the caption to explain how this presented data is related to human health. (Estrada, Yuka, IPCC WGII TSU)
1007	11	66	0	0	0	Figure 11-8: Please clarify y-axis. (Estrada, Yuka, IPCC WGII TSU)
1008	11	66	0	0	0	Figure 11-7. This figure caption is woefully incomplete. It would be preferable to simply cross-reference within this chapter the cross-chapter box containing these graphics. (Mach, Katharine, IPCC WGII TSU)
1009	11	66	0	0	0	Figure 11-7: This figure should be deleted and replaced by a reference to the Cross-Chapter Box CC-RC. In addition, the description in the caption is not completely accurate. (Mastrandrea, Michael, IPCC WGII TSU)