#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	36953	17	0	0	0	0	The use of graphs for visualizing the economics of climate adaptation problems is fairly limited in the Chapter. The next two comments will give two examples on how to improve on this. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	An additional illustrattive figure has been provided in the chapter (See figure 17.3).
2	39077	17	0	0	0	0	Mukheibir – Adaptive planning for resilient urban water systems FINAL.pdf (emailed to wg2-ar5-supportingmaterial@ipcc-wg2.gov) (Pierre Mukheibir, University of Technology Sydney)	No specific action was taken as the comment was intended to provide examples on how to use graphs to visualise economics.
3	39078	17	0	0	0	0	IJW 0003 Mukheibir – published version.pdf (emailed to wg2-ar5-supportingmaterial@ipcc-wg2.gov) (Pierre Mukheibir, University of Technology Sydney)	No specific action was taken as the comment was intended to provide examples on how to use graphs to visualise economics.
4	39505	17	0	0	0	0	Generally, we seem to need new data here and there instead of attempting to use available data for the new challenge. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	We agree with the general need for new data, but we are only assessing the available literature instead of generating new data ourselves.
5	39507	17	0	0	0	0	Assuming that "adaptation to climate change" is taken literally, we face a big challenge in any analysis: What is done anyway (see e.g. flood protection) and what is done on top of that in order to adapt to a changing climate (and its expected impacts). In that respect we should focus more on the benefits and the costs of the climate premium. I would like to suggest to make this point more prominently known in the summary, although it is addressed at different points in the chapter. In this interpretation "adaptation gap reduction" in the figure on page 33 of Hallegatte, Lecocq & de Perthuis (2011): Designing Climate Change Adaptation Policies – An Economic Framework. World Bank Policy Research Paper 5568 cannot be called adaptation to climate change. Then we should not treat these measures as such, even if they make (economic) sense. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	The chapter has provided how economics can be used to assess adaptation strategy effectiveness (against costs) in section 17.2.2, and has highlighted in the executive summary (see page 2, second point of Executive summary).
6	42208	17	0	0	0	0	The comments made above on Ch. 11 affect Ch. 17 significantly (economic consequences are discussed in the book by Sørensen (2011). (NOTE: Copied here are the comments that Sorensen referred to) Section 11.2.2: Although the section starts out with correctly mentioning the U-shaped relation between temperature and mortality, the rest of the section is focussed on extreme temperature excursion and specific diseases related primarily to high temperatures, plus very limited remarks on low temperatures. Much more exhaustive and quantitative investigations have been made, e.g. by WHO (Heat waves: risks and responses, Regional Office for Europe, Copenhagen 2004) and by J. Diaz and C. Santiago (cCASHh workshop on vulnerability to thermal stresses, Freiburg 2004), and the work has been continued by global and quantitative modelling of the impacts of changes in daily maximum and minimum average temperatures in Chapter 5 of B. Sørensen (Life-cycle Analysis of Energy Systems; Royal Society of Chemistry, RSC Cambridge 2011), with further references. Section 11.2.4.1.1: It is mentioned that the incidence of malaria is declining in several countries (e.g. Figure 11.9), but it would seem appropriate to quote the much stronger WHO model predicting near-eradication of malaria by 2030 (WHO: The global burden of disease: Updated projections, Geneva 2008). Similar projections are made by the WHO for other tropical diseases. If correct, the impact of global warming on absolute mortality would dramatically decrease. (Bent Sorensen, Roskilde University)	We have decided to leave this for Chapter 11 to address specifically as we do not deal with economic consequences of climate change here.
7	43196	17	0	0	0	0	The writing in this chapter is free of jargon, has clear explanations and uses examples well to illustrate key points. In my assessment the chapter is balanced in its approach. It does pay due heed to the good points in decades of the more conventional benefit cost approaches, whilst appropriately recognising short-comings of these approaches in the challenging set of circumstances that climate change will pose. The true degree of challenge in those circumstances does come through the chapter well. I particularly appreciated the wider lens – reminders to pay attention to equity and affordability issues, behavioural biases, the preferences of future generations, and the effects on ecosystem services and the need for multiple metrics. Points such as the one stating that we may need to revisit the idea of first getting the efficiency right then doing the equity as a separate step later, because doing the equity is becoming difficult, are perceptive. (Judith McNeill, University of New England)	The comment is noted and appreciated
8	43197	17	0	0	0	0	(McNeill continued) A wide-ranging literature is cited and this is well explained where detail is given. The three FAQ's at the end are certainly central and useful. I confess that after reading about the limitations of conventional benefit cost analyses when applied to climate change adaptation – very important, explained clearly and at appropriate depth – and other obstacles to rational adaptation decision- making, the reader does begin to get a feeling 'ok, so what IS going to be a useful way for, say, a local government to proceed?' Therefore the FAQ's (and the executive summary) provide the opportunity to summarise the most important policy implications. These summaries are also done well, I think. The reader can 'take away' the following, for example (for, say, the local government policy- maker): there may be instances when you just have to settle for looking at least cost • solutions to problems, keeping losses to politically and ethically acceptable levels; always keep in mind the affordability of a market-based instrument (if choosing • one) and also their effects on ecosystem services if it is not possible to ascribe meaningful probabilities to events, it is useful to think in terms of how different scenarios would play out, and the range of possible • consequences of the adaptation options that are being considered; as far as possible, choose policy options that are effective, but reversible and • flexible, so that they may be upgraded or downgraded as necessary; think about the way a partnership with insurance companies may help, including influencing the design of premiums in a way that encourages (rewards) private • adaptation options. (Judith McNeill, University of New England)	The comment is noted and appreciated
9	44413	17	0	0	0	0	Literature to consider: Shove, E. 2010. Beyond the ABC: climate change policy and theories of social change, Environment and Planning A, volume 42, pages 1273-1285; (Linda Sygna, University of Oslo)	The paper was considered, but did not feature in the final, shortened version of the chapter.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
10	44414	17	0	0	0	0	Does this chapter need more on behavior since the success of any measures will depend on how individuals act. See for example: Thøgersen, J. (2004). A cognitive dissonance interpretation of consistencies and inconsistencies in environmentally responsible behavior. Journal of Environmental Psychology 24 (1), pp. 93-103. Also consider on ecological citizenship (motivates individuals' responses to climate change): Johanna Wolf , Katrina Brown & Declan Conway (2009): Ecological citizenship and climate change: perceptions and practice, Environmental Politics, 18:4, 503-521 (Linda Sygna, University of Oslo)	We agree with the importance of the behaviour of economic agents in shaping adaptation decisions, and has been included among other considerations (see 17.3.4; 17.3.5), but it was beyond the scope of the chapter to go into detailed behavioural theories.
11	44522	17	0	0	0	0	Section 17.3.7.1 Uncertainty and Portfolio Theory: discussion of the source of uncertainties including uncertainties in scenarios and projected climate change needs to refer to the relevant WGI AR5 Chapters (Ch1 and others). Note that WGI AR5 does not distinguish the 2 and 4oC worlds as done here. In addition, the range of projected climate change using the illustrative SRES scenarios in the AR4 WGI was wider than just between +2 to +4oC. (Thomas Stocker, IPCC WGI TSU)	We still discuss sources of uncertainty in 17.3.6.1 and refer to AR5 WGI for details on uncertainties associated with future climates and their impacts.
12	44523	17	0	0	0	0	Section 17.6.3.4: The discussion of SLR could be updated to refer to WGI AR5 Ch3/13. (Thomas Stocker, IPCC WGI TSU)	This section was restructured after the FOD, and the discussion on sea level rise was part of a table illustrating the economic evaluation of adaptation options.
13	45100	17	0	0	0	0	I note a general absence in this generally excellent chapter of the growing Australian literature on this topic, some of which is mentioned in my comments but more could be found outside my organisation CSIRO (e.g. See http://www.nccarf.edu.au/) (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	We have addressed the specific comments provided in the specific sections, taking note of the literature suggested.
14	45561	17	0	0	0	0	This Chapter provides a balanced discussion on a number of pertinent points. There are opportunities to cross-reference with Chapter 2 in particular. (Thilak Mallawaarachchi, The University of Queensland)	We have made reference to Chapter 2 in some areas (17.1 , 17.6.3)
15	46951	17	0	0	0	0	There is welcome questioning of economics as a tool to make policy decisions about adaptation given limits in predicting costs and recognition of intrinsic value judgements. Adger et al (Adger WN, Lorenzoni I and O'Brien KL (2009) Adapting to Climate Change: Thresholds, Values, Governance, Cambridge University Press, p6) accepts that there are plausible climate thresholds to which adaptation can barely respond, section 16.5 of this FOD makes a similar point. In the light of Adger et al (2009) and Charlesworth M & Okereke C (2010, Policy responses to rapid climate change: An epistemological critique of dominant approaches, Global Environ. Change, 20:121-129, doi:10.1016/j.gloenvcha.2009.09.001) the questioning of economics as the default policy too does not go far enough. This is especially true where economics use and even imposition tends to promote utilitarian ethical assumptions at the exclude other ethical schemes that are more rational when faced with acknowledged difficulties in estimating costs and are these other ethical schemes are the centre of gravity for more people in the world than economics (e.g. Palmer, M., Finlay, V., 2003. Faith in Conservation: New Approaches to Religions and the Environment. The World Bank, Washington, DC. http://publications.worldbank.org/ecommerce/catalog/product?item_id=1703018 or http://www.arcworld.org/books.asp?sectionID=1 , http://www.windsor2009.org/). (Mark Charlesworth, Keele University)	We believe the chapter has already covered this and presented a balanced presentation that places economics in appropriate context for chapter tile and purpose. Chapters 2 and 20 cover this further.
16	47048	17	0	0	0	0	In general, this chapter contains very interesting information. However, an effort is necessary to link the different sections and subsections since now they appear a bit unconnected and sometimes the same concept is addressed in different subsections that could be combined and shortened. I also suggest revising if all the subsections are necessary. Sometimes subheadings are followed just for a short paragraph statement that in the case of not being expanded well could be combined with other existing sections. (i.e. subsection 17.2.21 Adaptation as an investment, or subsection 17.2.6.2. Costs and Benefits are Location-Specific). References need to be carefully addressed all over the chapter since a lot of them are incomplete. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	we worked on this in rewriting and shortening
17	47254	17	0	0	0	0	general Comment: This chapter requires substantial work and currently confuses needs of developing countries with the need to make adaptation as "financially attrative" as mitigation. It seems to prematurely looking for "solutions" including innovative ones, without first determining what is actually needed. For example, in the listing that starts at the bottom of page 43 under the section "Summary" consists mostly of market-based public policy - irrespective of whether these are in developed or developing countries. The third bullet is about how energy firms are using weather derivatives. The issues with this chapter are so deep that it is simply not worth commenting line-by-line. It goes into providing policy advise, rather than informing policy. The framing of the chapter, for example in section 17.2.2 "Toward a REalstic Assessment of Stategy Attractiveness" borders on unethical and is certainly out of line with the obligations and commitments undertaken by Parties under the UNFCCC. This chapter needs to go back to the drafting board and more authors from developing countries added to the writing team. (Juan Hoffmaister, Third World Network)	We have considered the differences between developed and developing countries in the chapter (for example see section 17.2, table 17.4, executive summary) as far as the literature allows. We however think the chapter is still addressing the relevant issues on the economics of adaptation in an objective manner.
18	47620	17	0	0	0	0	A general comment on what seems missing in this chapter : energy remains the main issue if one adopts the hypothesis that part of global warming is anthropogenic. At the macro level, an "adaptation strategy" has consisted in attemps to control emissions of CO^2 (e.g. the European Trade Exchange System), another strategy is to substitute nuclear energy for carbonated energy. CO^2 emissions is not detrimental per se but through the associated emission of risks of big disasters following climate change. The ETS taxes this emission of risk . Changing technology from carbon to nuke produces the "emission" of another type of risk of big disaster if many nations follow this "adaptation" strategy. The balance between both t types of risks is one of the major issue that will dominate the debates about energy production in the next decade. Nothing seems to be said about this question in the draft. It is curious that since AR4 (2007) and in spite of a major nuclear disaster in the meantime, very little is said on the expectations that can be made about the growth of nulear energy and on the expected cost of increasing its safety which probably outweighs the cost of several adpatiation stretgies mentioned in the draft. Chapter 17 does not even include the word "nuclear". (Pierre BATTEAU, Aix Marseille UNiversité)	We view this as a mitigation issue, and leave it to WGIII.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
19	50907	17	0	0	0	0	1) Overall -- In preparing the 2nd-order draft, the chapter team should prioritize making each section of the chapter a polished, comprehensive treatment of topics considered. From these sections, the chapter team is then encouraged to maximize the utility of its findings, ensuring that they are robust, compelling, and nuanced. Themes to consider informing in constructing findings include decisionmaking under uncertainty, risks of extreme events and disasters, avoided damages, and limits to adaptation. To these ends, the development of the chapter has very much improved. In an effort to inform further chapter development, I provide some general and specific comments below. (Katharine Mach, IPCC WGII TSU)	We tried to follow this in our revision
20	50908	17	0	0	0	0	2) Highlighting key findings -- In developing the 2nd-order draft, the chapter team should aim to present key findings throughout the chapter's sections, using calibrated uncertainty language to characterize its degree of certainty in these conclusions. In this way, a reader of the chapter will be able to understand how the literature reviews and syntheses in the chapter sections--the traceable accounts--support the conclusions of the chapter, especially those presented in the executive summary. Additionally, identification of key findings throughout the chapter will support their presentation in the executive summary. (Katharine Mach, IPCC WGII TSU)	We have not as of yet done this but must
21	50909	17	0	0	0	0	3) Usage conventions for calibrated uncertainty language -- The author team should continue presenting calibrated uncertainty language in italics. Additionally, the chapter team is encouraged to continue presenting calibrated uncertainty language parenthetically at the end of sentences or clauses, in addition to incorporating these terms directly into sentences. Casual usage of the reserved uncertainty terms should be avoided, as has been flagged in some specific comments throughout the chapter. (Katharine Mach, IPCC WGII TSU)	We have not as of yet done this but must
22	50910	17	0	0	0	0	4) Tightening of text and reduction of length -- Across the chapter, the author team is encouraged to refine and tighten presentation of text in all sections. The author team may find opportunities for reducing presentation of background information and for emphasizing new literature and results. In tightening the chapter and reducing its length in this way, the author team may also find opportunities for enhancing the overall effectiveness of the chapter in communicating key findings to the reader. (Katharine Mach, IPCC WGII TSU)	We have worked hard on this as part of reducing the length of the chapter, using tables at times to organize information more compactly.
23	50911	17	0	0	0	0	5) Comprehensiveness of assessment -- Throughout the chapter, the author team should ensure comprehensive consideration of relevant literature, with complete citations. (Katharine Mach, IPCC WGII TSU)	We have done this to the extent length limits allow
24	50912	17	0	0	0	0	6) Figures and tables -- Figures, as well as tables, represent an important and effective vehicle for clear communication of assessment and corresponding key findings. The chapter team may wish to consider further development of figures to complement the assessment in the chapter text. For example, there potentially could be possibilities for visual presentation of information on economic instruments or adaptation costs. (Katharine Mach, IPCC WGII TSU)	We have used additional tables and figures (see section 17.6) to communicate information that could have required more pages in plain text.
25	50913	17	0	0	0	0	7) Coordination across the Working Group 2 contribution -- In developing the next draft of the chapter, the author team should consider treatment of topics not only in this chapter, but also across the report as a whole. For each topic, the chapter team should ensure that treatment here is reduced to the essence of what is relevant to the chapter, with cross-references made to other chapters as appropriate, also minimizing overlap in this way. (Katharine Mach, IPCC WGII TSU)	We have reduced details of definitions covered in other chapters and tried to keep focus on the economics of adaptation (see for example section 17.2 where we drop defining autonomous adaptation).
26	50914	17	0	0	0	0	8) Harmonization with the Working Group 1 contribution to the AR5 -- At this stage of chapter drafting, the author team should carefully consider the working group 1 contribution. Wherever climate, climate change, climate variability, and extreme events are discussed, the chapter team should ensure that their treatment is harmonized with the assessment findings of working group 1. (Katharine Mach, IPCC WGII TSU)	We have mostly referred to WGI in our discussion of uncertainty associated with climate change (see section 17.3.6).
27	52590	17	0	0	0	0	1. chapter structure • Generally, the chapter is structured logically and flows fairly well. The Executive Summary and Background sections do a good job of signaling what is to come. While the content of Section 17.2 Adaptation as an Economic Problem is highly relevant, it is not completely clear how the sub-headings in this section hold together under the section heading. Perhaps some linking language could remedy this. 2. coverage • The coverage of this chapter is quite broad. Inclusion of the concept of residual damage along with methodologies for evaluating it is very welcome. Using sea level rise and coastal impacts as an example was found to be quite useful, including the outcomes of decision-making options such as sea walls and migration and outlining the possible results of these decisions. • Highlighting the connection between mitigation efforts and the economic impacts of the adverse effects of climate change welcomed. • The attention to socio-economic and non-market costs as part of the evaluation of overall adaptation costs is commendable. • The decision-making section (17.3) is welcome, but the subsection on the objectives of adaptation would seem to fit more appropriately in a background our introductory section. • Section 17.5 on Economic Instruments to Provide Incentives is welcome, but it feels a bit like a shopping list. Most economic instruments are implemented through norms and regulations; however, norms and regulations is a separate sub-section. Therefore, there is scope here for rationalization. • The selected studies section (17.6.3.), especially the study on sea level rise and coastal systems (17.6.3.4.) is a pleasant surprise. Tying the selected studies into the research set out in the previous sections in this chapter in a more systematic way would be very useful. 3. gaps • An analysis of non-market costs of the impacts of climate change need to include the geophysical plight of small island nations with economies that are at the mercy of climate-related events - both extreme weather events and slow onset processes, such as sea level rise, temperature rise and ocean acidification. 4. balance • Generally, good. Would like to see some more emphasis on economic impacts of slow onset impacts such as sea level rise, temperature rise and ocean acidification. 5. cross-chapter issues • Reference to other chapters noted although this could be stronger. (Malia Talakai, AOSIS)	Thank you. The changes made to the chapter attempt to tighten the chapter and present them in a more informative manner, such as section 17.6. We have tried to make 17.5 not look like a shopping list by focussing it to just assessing the literature, but we feel it is important to present the different types of instruments that are present in the literature.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
28	52877	17	0	0	0	0	This chapter should provide a more balanced assessment of the damage costs in the absence of adaptation, the costs of adaptation and the residual damage costs, to the extent that the literature allows (John Hay, University of the South Pacific)	Section 17.6 assesses costs of adaptation to the extent that the available literature permits, but due to the limits in the literature, we have not been able to provide a comprehensive assessment of the aspects in this comments.
29	53171	17	0	0	0	0	The chapter could use strengthening of issues with nonmarket impacts through examples and additional discussion. (Kristie L. Ebi, IPCC WGII TSU)	We have tried to use examples where possible, but additional discussion has been constrained by page length restrictions.
30	53172	17	0	0	0	0	The first half of the chapter uses sea level rise as an example far too often. Please use other examples to illustrate the points, otherwise you risk having readers not understand the relevance of the material to other sectors. (Kristie L. Ebi, IPCC WGII TSU)	We tried to use some consistent examples to illustrate different aspects of the issue. We have also now tried to diversify examples in the rewrite.
31	53173	17	0	0	0	0	A perhaps useful framing in the adaptation discussion is to consider options that are incremental, transitional, or transformative. (Kristie L. Ebi, IPCC WGII TSU)	We did not think this would add to the chapter and and could be policy presriptive.
32	53174	17	0	0	0	0	Please consider using low-regrets instead of no-regrets as all options will have human or financial costs that could involve some degree of regrets. (Kristie L. Ebi, IPCC WGII TSU)	We no longer use the term "low-regrets" in the chapter.
33	53175	17	0	0	0	0	Please use the AR5 glossary. I assume you will update statements citing the AR4 (except for the summary of the AR4) with reference to appropriate chapters/sections in the WGII report. (Kristie L. Ebi, IPCC WGII TSU)	We no longer make reference to AR4 except for the point of departure of the chapter (section 17.1)
34	53176	17	0	0	0	0	The primary audience is national government policy makers, who will not be particularly interested in the regular statements that a particular topic is reviewed by xx, year. If xx, year is listed as a reference, then readers can look the issue up if they have interest. (Kristie L. Ebi, IPCC WGII TSU)	This has been done during shortening of the chapter.
35	54460	17	0	0	0	0	GENERAL COMMENTS: I would like to thank the authors for an interesting and enjoyable FOD. When considering the expert review comments received on your chapter and the next round of revisions, I suggest several overall priorities. (1) Keep in mind that the preparation of the SOD is the time to ensure that each section of the chapter presents a comprehensive treatment of relevant literature, particularly in sections where referencing is currently light as noted in TSU comments on specific sections/passages, and that the Executive Summary presents findings that capture the key insights that arise from the chapter assessment. (2) This is also the time to focus on distilling the chapter text, not just fine-tuning wording but editing with a critical eye to improving quality by making discussions succinct and synthetic, while still being comprehensive. The chapter has made great improvements in cutting down background and "textbook" discussions, but more work can be done. (3) Cross-chapter coordination is also important at this stage, as it should now be possible to identify topics that overlap with other chapters and to coordinate with other chapter teams to minimize that overlap. For example, please make efforts to cross-reference and coordinate with other WGII chapters in revision of section 17.6.3 on sector and region-specific studies. (4) Cross-Working Group coordination is important as well, and relevant chapter sections should cross-reference chapters from the other Working Groups, particularly in the case of statements about changes in mean or extreme climate conditions that are assessed in the contribution of Working Group I. (5) Continue to look for opportunities for the creation of figures that synthesize across results from the literature. (Michael Mastrandrea, IPCC WGII TSU)	Referencing has been strenghtened, shortening done, cross chapter coordination improved, and figures used to the best extent possible.
36	54461	17	0	0	0	0	TRACEABLE ACCOUNTS: The author team has also made a good start on the Executive Summary, including clear attention to providing traceable accounts for assessment findings and highlighting the location of those traceable accounts in the Executive Summary. There are several cases where improvements could be made, for which I have included suggestions in comments associated with specific bullets. In general, I would recommend the author team consider ways to more clearly identify assessment findings in the chapter text to link with the Executive Summary. One approach would be providing some explanation of the calibrated uncertainty language used in the Executive Summary in the corresponding chapter section(s) where the traceable account appears for each finding. Currently, the confidence language in the Executive Summary is not mentioned in the corresponding sections. In particular, in situations where confidence is not high, it would be useful to understand why the author team has made this judgment (e.g., is there a lack of robust evidence?, are there multiple perspectives in the literature?). In situations where confidence is high, what is the evidence that forms the basis for these assignments? Succinct descriptions in the chapter text of this type will both highlight the basis for ES findings and help explain the author team's assessment of the literature. (Michael Mastrandrea, IPCC WGII TSU)	we have done this but still need to strenthen it.
37	54892	17	0	0	0	0	Literature permiting, the chapter team is encouraged to add more cases to support their findings. Moreover, it would be useful if the enabling or detering factors, drivers etc., are explicitly stated where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	Additional cases have been provided within space constraints and as the literature permits.
38	54893	17	0	0	0	0	The author team should update the reference list and remove citation inconsistencies between in text citations and full citations given in the reference list. Please see supplementary document named WG2AR5-Chap17_Reference Checks.pdf at https://ipcc-wg2.gov/AR5/author/FOD/SuppMat (Monalisa Chatterjee, IPCC WGII TSU)	This has been done
39	48420	17	1	0	45	0	The chapter has a clear and logic organisation. No doubt some missing or scantly discussed elements have to be elaborated, but the main structure is OK. (Adriaan Perrels, Finnish Meteorological Institute FMI)	Thank you for the comment

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
40	48421	17	1	0	45	0	Technical development deserves to get more attention. It appears as an element in several places in this FOD chapter 17 (e.g. in sections 2.1.2, 4.1 and 5.12), but in that case often as explicit distinct action instead of a process which interacts with other processes. Elaboration on technical development would also offer better linkage options to Chapter 20. Technical development may also mean that some climate change enhanced hazards may eventually become less instead of more critical for e.g. transport (thanks to radar fitted cars, intelligent highways, etc.). On the other hand combined effects of advanced logistics and globalization may mean enhanced instead of reduced vulnerability, These examples also indicate that very low vulnerability levels may be only reached for the most developed parts of infrastructure (implying also of countries and country groupings). In other words such (expensive) technical developments may exacerbate (instead of diminish) regional differences in vulnerability. See also later on ... comment (Adriaan Perrels, Finnish Meteorological Institute FMI)	We generally agree with the comment, and believe it is addressed for example in the revised version of section 17.2.1.2. Other sections where this comment refers to have been lost during revisions e.g. 17.5.12. we however do not assess the literature on vulnerability in this chapter.
41	50915	17	2	49	0	0	Executive Summary -- In subsequent work on the executive summary, the author team is strongly encouraged to maintain the overall style of the executive summary, with bold key findings and explanatory non-bold text, with clear references to supporting chapter sections, and with assignment of calibrated uncertainty language. The author team is also strongly encouraged to continue presenting key findings that range from high-level generalizations about the current state of understanding to detailed and nuanced characterization of relevant subtleties in this understanding. (Katharine Mach, IPCC WGII TSU)	The comment has been noted and style will be maintained.
42	54220	17	3	1	3	2	Regarding the traceable account for this bullet, it is not completely clear that 17.3.10 is directly relevant. If this is true, the reference here could be removed, or the connection should be made more explicitly. (Michael Mastrandrea, IPCC WGII TSU)	Reference to 17.3.10 has been removed.
43	48422	17	3	1	3	12	What is missing is a bullet point referring to 'assessing consequences of alternative development pathways and consequent different pathways (and spatial-temporal distributions) of vulnerabilities'. In other words scenario exercises as a basis for (ex-ante) policy evaluation (this ties also in with the previous comment on technological development). (Adriaan Perrels, Finnish Meteorological Institute FMI)	This point is relevant, but has been covered in a separate point of the executive summary (see page 3 line 12-19).
44	54221	17	3	10	3	12	Please add supporting chapter sections for this bullet. (Michael Mastrandrea, IPCC WGII TSU)	The supporting section has been added
45	54222	17	3	14	3	24	Regarding the traceable accounts for this bullet, it is not immediately clear that 17.3.9 is directly relevant. If this is true, the reference here could be removed, or the connection should be made more explicitly. In addition, 17.3.7.2 seems as if it may be relevant and could be referenced. (Michael Mastrandrea, IPCC WGII TSU)	The irrelevant section reference has been removed.
46	42262	17	3	22	0	22	"low weight" should be "no weight" as aggregated analysis says nothing about distribution (Adolf Stroombergen, Infometrics)	This point has been lost during the revision of the chapter. Instead, reference is made to weights attributed to different objectives rather than the level of the weights.
47	39504	17	3	23	0	23	Rather "only a few" than "not all". (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	This has been addressed during the revision of the chapter.
48	54214	17	3	30	3	31	It is not completely clear what "uniformly desirable" means in this context. Across preferences, world views, different stakeholders? (Michael Mastrandrea, IPCC WGII TSU)	The unclear part has been removed from the text
49	54215	17	3	33	3	35	The author team may wish to consider pairing this bullet with the last bullet of the Executive Summary. This would make it clear that despite the important difficulties highlighted here, estimates are available, and the points made in this bullet would help explain the basis for the assignment of low confidence in the numerical results presented in the last bullet. (Michael Mastrandrea, IPCC WGII TSU)	This bullet has been combined with the final point of the Executive Summary (page 3 line 39-46), substantiating the low confidence in that point.
50	38251	17	3	37	3	40	Executive Summary. “Development and adaptation can be complementary or competitive and development can yield adaptation co- benefits, provided it takes into account climate change in its design. Adaptation actions can provide significant positive ancillary benefits such as alleviating poverty and enhancing development (high confidence).” Question: Would it be possible to indicate how these co-benefits will be varying for both developed and developing countries? (Abdalah Mokssit, Direction de la Météorologie Nationale (DMN))	We have indicated in the Executive Summary how the co benefits of adaptation differ between developed and devloping countries, following the assessment provided in 17.2.7
51	54216	17	3	42	3	44	Here is an example where currently it is unclear why medium confidence has been assigned. In this case, the author team should consider making a new paragraph with this as the first sentence, followed by non-bold text explaining the context of the finding and the reasons for medium confidence (perhaps with further discussion in the corresponding chapter sections in keeping with my general comment on traceable accounts). (Michael Mastrandrea, IPCC WGII TSU)	The statement to which medium confidence had been assigned has been made a supporting statement to the main statement, removing the medium confidence level.
52	54217	17	3	46	3	53	Here is a another case where it is not clear why medium confidence has been assigned. In this case, the finding focuses on research directions. Might the author team's observations about those directions be wrong, and this broadening is not occurring? That is what is currently implied by the assignment of medium confidence. If not, the purpose of medium confidence requires further clarification. (Michael Mastrandrea, IPCC WGII TSU)	Following the revision of the chapter, this point of the Executive Summary has been moved and combined with the first one (page 2 line 31-40).
53	40810	17	3	49	3	49	The statement is so vague that it could desrve a high confidence evaluation. (Michel Petit, CGIET rue de Bercy)	Following the revision of the chapter, this point of the Executive Summary has been moved and combined with the first one (page 2 line 31-40).
54	39506	17	4	4	0	10	Do "instruments" (line 6) refer to "economic instruments" (line 4)? Then "norms and regulations…" (line 9-10) seem misplaced here. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	Though the focus is on economic instruments, the discussion in the text has looked at norms and regulations as well since they can be used to influence the behaviour of private economic actors
55	50916	17	4	15	4	16	For this key finding, it would be preferable to avoid juxtaposition of "may" with "medium confidence," given corresponding challenges of interpretation for the reader. Could the author team be more precise with the verb of the sentence, potentially adjusting the assignment of calibrated uncertainty language if needed? (Katharine Mach, IPCC WGII TSU)	We have adjusted the wording of the sentence to make it clearer and precise.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
56	54218	17	4	15	4	16	The pairing of "may" and "medium confidence" is somewhat hard to interpret. It would be clearer to say that the author team has medium confidence that risk financing mechanisms "will" contribute to increasing resilience to climate extremes, or that the author team has "high confidence" that risk financing mechanisms may contribute to increasing resilience to climate extremes. (Michael Mastrandrea, IPCC WGII TSU)	We have adjusted the wording of the sentence to make it clearer and precise.
57	54223	17	4	15	4	26	Regarding the traceable account for this bullet, it is not completely clear that 17.3.8 and 17.3.9 are directly relevant. If this is true, the reference here could be removed, or the connection should be made more explicitly. In addition, it would be helpful to specify the relevant section(s) within 17.4 (e.g., 17.4.1). (Michael Mastrandrea, IPCC WGII TSU)	We have corrected the sections that account for the point, but have kept reference to 17.4 in general which has now been focussed and shortened to enable the reader to link it with this point of the Executive Summary.
58	54219	17	4	19	4	21	The placement of "high confidence" in the middle of this paragraph makes it slightly unclear whether this refers only to the sentence in which it appears (where others before and after are medium confidence) or whether it applies to that sentence and subsequent sentences. (Michael Mastrandrea, IPCC WGII TSU)	The assignment of "high confidence" in the middle of the paragraph will be removed in the next version.
59	41453	17	4	28	0	0	it is surprising why first a range for adaptation costs in developing countries is provided (28 to 67 bn USD, obviously based on the UNFCCC paper on investment and financial flows), this with low confidence, and then in the next sentence it is said it could be higher if other sectors are included. Logically one would assume that the range would already cover the highest estimates, in particular if "low confidence" is assigned to the statement (Sven Harmeling, Germanwatch)	This point of the executive summary has changed after changes in the section dealing with costs of adaptation.
60	41576	17	4	28	0	0	"Current estimates of the costs of adaptation range from $48 billion to $171 billion per year globally..." that is the UNFCCC range and it EXCLUDES a) ecsoystems and b) the 'adaptation deficit'. Allowing for these could double-to-triple the upper range (see Parry et al 2009) (Martin Parry, Imperial College)	We agree with this, and have reflected this in the revised chapter
61	45389	17	4	28	0	29	Current estimates (...) range from $48 billion to $171 billion per year globally, and from $28 billion to $67 billion for developing countries (low confidence)' 'Confidence' is used in a strange way here. It now basically states that there is little confidence that current estimates say x and y. What the authors mean (I reckon) is that the cost estimates are only weak estimates. This I completely agree with, but it something else from what is written now. And actually there are estimates ranging much higher: e.g. Parry et al (2009) in their critique on the UNFCCC estimate for example state that including ecosystem protection would cost another USD 65-300 bn per annum. And the World Bank EACC report mentions adaptation costs to be 75-100 bn per annum in developing countries (and they do not even take into account all sectors, and do not take into account the costs of building adaptive capacity and institutions (soft adaptation)) (Willem Pieter Pauw, German Development Institute (DIE))	The presentation has been revised and simplified, reflecting revisions in the chapter
62	40811	17	4	28	4	29	Comparing the adaptation costs to corresponding damage reduction savings would be useful for decision makers, even if the uncertainties are dramatically large. See e.g. chapter 5, page 3, line 23-25 which gives relevant information for coastal systems (Michel Petit, CGIET rue de Bercy)	We agree with the usefulnes of making the suggested comparisons, but we have left sectoral and regional specifics analyses to respective regional and sectoral chapters as we would not be able to present a comprehensive assessment with limited space.
63	53177	17	4	28	4	30	Please give the time frame for the estimates. (Kristie L. Ebi, IPCC WGII TSU)	The revisions now provide time frames for estimates (by 2050) - see page 3 line 41
64	48164	17	4	28	4	45	This section on costs is of great importance. The conclusions in the executive summary I find confusing and of limited policy relevance. Doesn't this section say: estimates vary extremely widely and little robust information can be concluded. If this is true, it should be stated more clearly. (Jochen Harnisch, KfW)	The section has been revised to make it clearer.
65	48423	17	4	28	4	45	I agree that it is current virtually impossible to provide a very wel structured overview and comparison of the all the sorts of economic impacts studies carried out. Kuik et al (2011) Methodological aspects of recent climate change damage cost studies, Integrated Assessment Journal, Vol. 8, Issue 1, pp. 19–40 identifies notably regional macro-economic impacts studies as a - as yet - not well studied area. What could be added is that bottom-up (local/regional or sectoral) studies could be used in a more systematic way (after quality checks) for meta-studies and as references or benchmarks for higher scale models (often working with stylized damage functions). The EU funded repository European Climate Adaptation Paltform (hosted by the EEA) can be helpful for such utilization (and set an example for other countries and country groupings). It is also important to explain differences between direct damage cost (most of the studies refer to that) and overal induced economic cost (growth differenitals over a period of time). Last but not least differences between cost (loss of production) and loss of welfare could be explained. (given that this text block is a summary the suggested additions should show up in various places across the chapter) (Adriaan Perrels, Finnish Meteorological Institute FMI)	The revised chapter assesses the distinctions between loclised and globalised analyses and also looks at the literature focussing on selected studies and regions (see sections 17.6.2 and 17.6.3). We however focus on adaptation costs in this chapter rather costs of impacts.
66	36951	17	4	33	4	33	$7.2' should be '$7.2 billion' I think (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	These numbers have been removed after changes in the chapter.
67	35640	17	4	37	0	0	Sea level rise should not be considered a sector. (Norio Saito, Graduate School of Science and Engineering, Ibaraki University)	Reference to sea level rise as a sector has been removed from the executive summary.
68	43898	17	5	1	5	1	missing the word " of" between " analysis" and "how" (Calvin Atewamba, UNECA)	Corrections have been made as part of the revisions.
69	36954	17	5	7	14	5	Adaptation as an Economic Problem could be visualized using a graph with on the horizontal axis the amount of adaptation and on the vertical axis the costs. See for example Koetse and Rietveld (2012), p. 274, Fig.1. This graph probably best suits in section 17.2.2.1. Koetse M.J. P. Rietveld (2012): Adaptation to Climate Change in the Transport Sector, Transport Reviews: A Transnational Transdisciplinary Journal, 32: 3, 267-286. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	We have considered a much broader view of the economic dimension of adaptation beyond just the costs of levels or ammounts of adaptation. See 17.2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
70	53178	17	5	20	0	0	A perhaps useful framing is to consider options that are incremental, transitional, or transformative. (Kristie L. Ebi, IPCC WGII TSU)	we do not think this would add to the chapter
71	37016	17	5	20	6	11	By defining "autonomous adaptation" as adaptation made by private acteurs in their own best interest you leave the reader at a guess where you place adaptation that takes place without active human interference, e. g. by natural succession. Or do you assume that letting said succession (or any other change in a natural system) happen actually constitutes an act of management and has to be subsumed under the "public" denotation? (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	This section has been dropped as it is covered adequately by other adaptation chapters.
72	44411	17	5	22	0	39	The division between autonomous (private goods) and public (pubic goods) adaptation is not a very good distinction either, as NGOs, international organizations has their own goals that may deviate from what society values, therefore labeling these adaptations as public goods may not be appropriate. Also even though the incentives may come from the state, businesses could also potentially be providers of public goods. In the example with the sea wall as a public good it is not clear why this sea wall is not excludable (the choice where this wall is situated). Any adaptation will be a result of values and priorities whether done by the state, NGOs or businesses. (Linda Sygna, University of Oslo)	We believe the public private distinction is approporiate as it raises the under provision possibility. We do not think different incentives compromises this.
73	45558	17	5	22	5	39	Moviang away from autonomous and planned adaptation to private and public adaptation as proposed in this chapter is an important development. Individuals faced with risks undertake self-protection and mitigation to minimise harm. When the risks are broad based and affect a large segment of a population public action may promote private investment in adaptive responses. This section identifies a number of factors that may lead to market failure in adaptation such as public goods and externalities, It is important to add information problems such as uncertainty as another explicit source of market failure. This is considered later in section 17.3.3. (Thilak Mallawaarachchi, The University of Queensland)	We have added uncartainty as source of market failure (see page 4 line 17-18)
74	47049	17	5	31	5	32	In my view, non rival concept in consumption does not mean that if one member of a group benefits from then all do), it has to do with the fact that the consumption by one consumer does not limit simultaneous consumption by others, and therefore the marginal cost of individual provision is zero. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	This material has been removed
75	36952	17	5	31	5	34	For the Samuelson reference the year is missing. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	This has been corrected
76	43899	17	5	37	5	38	the definition of planned adaptation is not correct. Planned adaptation is not only a set of pubic adaptation measure. (Calvin Atewamba, UNECA)	This part has been dropped from the revised chapter.
77	40936	17	5	38	5	38	Unclear why public adaptation would “merit provision at a level above that of private adaptations.” Does this refer only in terms of public funding? If so, this should be made clear. If not, it is unclear why this should be the case. (Frances Moore, Stanford University)	This is a classical economic distinction of why public investment may be needed. We changed the wording to reflect this.
78	43900	17	5	43	5	44	not clear, need to be rewritten: "as a whole may wish to promote adaptation in disadvantaged countries" (Calvin Atewamba, UNECA)	This part has been rewritten.
79	45101	17	6	9	0	0	Plus distributional/social equity concerns? Mentioned below but not here (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	The suggested point has been added to second bullet.
80	41455	17	6	10	6	10	You might add "To comply with international frameworks of action (e.g. NAPA)" (Sven Harmeling, Germanwatch)	We have added something along these lines
81	54224	17	6	11	6	11	Please specify where these points are elaborated, or whether this refers to elaboration throughout the rest of the chapter. (Michael Mastrandrea, IPCC WGII TSU)	There is no further elaboration, so we have taken this statement out.
82	53179	17	6	18	6	18	Research and technology development? (Kristie L. Ebi, IPCC WGII TSU)	The wording has been modified
83	43901	17	6	27	6	28	not clear, need to be rewritten: " although non-cash costs are also relevant and may be significant" (Calvin Atewamba, UNECA)	The statement has been reworded to include barriers
84	50917	17	6	27	6	35	As possible, it would be preferable to provide background citations for this information. (Katharine Mach, IPCC WGII TSU)	added citations to unfccc,parry et al, world bank
85	43904	17	6	38	0	0	"section 17.2.1.2" You forgot to add a definition for costs of adaptation" (Calvin Atewamba, UNECA)	lines 40-48 are this definition
86	48424	17	6	40	6	54	Please note that in many cases 'direct costs' are understood as the direct (first order) cost of disruptions/damage. If it comes to indirect effects there are still many modelling challenges.Both the state of the economy prior to an event, the position of the region in the national economy, and the applied compensation and repair regimes affect the pathway of recovery and the extent of return to the pre-event condtions. This comment is also relevant for section 2.6. (see e.g. Leiter, A. et al (2009), Creative Disasters? Flooding effects on Capital, Labour, and Productivity within European Firms, Environmental and Resource Economics, 43, pp.333-350; and Perrels et al (2011) - Quantifying direct and induced economic costs of climate change sensitive natural hazards at regional levels – example Finland www.nccr-climate.unibe.ch/.../Perrels_Adriaan.pdf (Adriaan Perrels, Finnish Meteorological Institute FMI)	We added a reference to indirect effects
87	43902	17	6	41	6	41	missing the woed " adaptation" between " revenues" and " decisions" (Calvin Atewamba, UNECA)	text modified
88	53180	17	6	48	6	50	Adaptation options don't need to be evaluated in economic terms; there are reasons why that would be beneficial, but it is not a necessity. (Kristie L. Ebi, IPCC WGII TSU)	weakened statement
89	43903	17	6	49	6	50	not clear, need to be rewritten: " Material in the section below on co-benefits and in Chapter 2 of this volume elaborates" (Calvin Atewamba, UNECA)	reworded
90	47050	17	7	1	7	4	I don't understand why the authors mentioned the technical progress as an indirect impact of climate change on welfare. I would like some clarification or example for this issue. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	text changed so issue no longer arises
91	53181	17	7	4	7	6	And these all have associated costs. (Kristie L. Ebi, IPCC WGII TSU)	added costs
92	53182	17	7	11	7	15	Political will is another factor of importance. (Kristie L. Ebi, IPCC WGII TSU)	wording added

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
93	53183	17	7	17	7	20	Please coordinate with Chapter 15. (Kristie L. Ebi, IPCC WGII TSU)	Coordinated
94	50918	17	7	18	7	18	"unlikely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	changed word
95	54894	17	7	23	0	0	Figure 17.1 The author team may consider further explaining, perhaps with examples. (Monalisa Chatterjee, IPCC WGII TSU)	Explanation improved
96	53964	17	7	26	7	34	Since this paragraph provides clear and systematic examples of each narrowing step, I think a table could be used to accompany the figure 17-1. (Yuka Estrada, IPCC WGII TSU)	we think the figure and accompanying text are adaquate
97	50919	17	7	28	7	28	Could the author team indicate more specifically what is meant by "the laws of physics"? For example, is "technical and physical limits" what is meant here? (Katharine Mach, IPCC WGII TSU)	tried other wording
98	50920	17	7	28	7	32	The author team they wish to clarify further the relationship between these "reasons" and figure 17-1. (Katharine Mach, IPCC WGII TSU)	text altered
99	54225	17	7	29	7	31	Extinction is a fairly reversible, and therefore "may" may not be the best word here. One option is to replace "may" with "are" and add, for example, "on human timescales." (Michael Mastrandrea, IPCC WGII TSU)	Not sure that we fully grasp the subtleties of this comment
100	35433	17	7	30	0	0	It's true that glaciers are easier to lose than regrow but it's hard to argue that most glacier loss is irreversible, except in a few very specific cases (E.g. high altitude equatorial, Kilimajaro, Rwenzori etc, where the glaciers survive because they strongly affect local climate). Current statements seems misleading to me, but could be modified to be OK. (David Vaughan, British Antarctic Survey)	reworded
101	45102	17	7	34	0	0	Sixth, it may sometimes be better to accept risk/costs because cost of adapting is too high/uncertain (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	added
102	53184	17	7	34	7	34	Other issues are uncertainty and surprises. (Kristie L. Ebi, IPCC WGII TSU)	uncertainy added with last comment
103	43905	17	7	37	0	0	" section 17.2.2.1" Change the title of this section to fit the contain. I propose " adaptationas a stock of capital" (Calvin Atewamba, UNECA)	reworded
104	43906	17	7	37	0	0	" section 17.2.2.1" need more information. For example, the benefit of adaptation will decrease when the amount of adaptation increases due to the law of diminishing returns. (Calvin Atewamba, UNECA)	added
105	47051	17	7	37	0	0	Section 17.2.2.2. Adaptation as an Investment. I find that this is a very interesting point to be expanded and could be combined with Section 17.2.2.3. Adaptation as a Dynamic Issue that also address investment analysis. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	This material has been reorganized
106	41456	17	7	39	7	39	Please explain why the costs of implementation will successively become more expensive when the amount of adaptation increases. (Sven Harmeling, Germanwatch)	We added a little and referenced Parry
107	37705	17	7	41	0	0	I think this section needs a quantitative example supporting the assertion of increasing costs. Add(?): A Sandia National Laboratories' study estimated the changing cost of adaptation across 70 industries for the United State through the year 2050 over the range of precipitation conditions contained in the ensemble of climate projections for AR4 (Backus et al. 2012). Investment and operating costs increased with worsening conditions, but the migration of people and business leads to less cost impact than would otherwise be expected. [Backus, G., T. Lowry and D. Warren, 2012: The near-term risk of climate uncertainty among the U.S. states. Climatic Change, Online First 23 June 2012. Doi: 10.1007/s10584-012-0511-8] (George Backus, Sandia National Laboratories)	added this reference
108	40937	17	7	44	8	4	Tyler Felgenhauer has done work on modeling the dynamics of adaptation using the AD-DICE IAM, considering both stock (capital investment) adaptations and flow (variable investment) adaptations. I am not sure if any are published yet. The presentation from the Adaptation Futures conference at University of Arizona (2012) is available here: http://adaptation.arizona.edu/upload-presentation/550 (Frances Moore, Stanford University)	We added areference to the concept
109	54226	17	7	47	7	48	Please replace this general reference to Working Group 1 with a citation to a specific chapter. (Michael Mastrandrea, IPCC WGII TSU)	Done
110	53185	17	8	14	8	17	Additionality is very complex for most of the nonmarket sectors. This discussion needs to be much more nuanced, including citing discussions of the significant problems with additionality. (Kristie L. Ebi, IPCC WGII TSU)	cited a discussion
111	50921	17	8	14	8	25	It would be preferable to provide background citations for this information as possible. (Katharine Mach, IPCC WGII TSU)	We added some
112	47052	17	8	19	8	20	When talking about the incremental cost of adaptation should take into account the factors affecting adaptive capacity. That is, perhaps some adaptation strategies that pursue actions that are beneficial even in the absence of climate change also increase the adaptive capacity for coping with other projects in the future, so when computing the benefits this should be considered in the discussion. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	We added this thought
113	45103	17	8	28	0	0	or look to whether these are compatible - fixing the current 'deficit' without a view to the future may be maladaptive, or may certainly miss synergistic options (see 'leapfrogging' discussed in Palutikof et al forthcoming ('Challenge 4' and Fig 8 in The past, present and future of adaptation: setting the context and naming the challenges, Chapter 1 in Palutikof et al 2012, Climate Adaptation Futures, Wiley:UK,) (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	We added this thought
114	43200	17	8	43	0	0	delete 'the' before 'considering (Judith McNeill, University of New England)	done
115	53186	17	8	50	8	50	or are effective forever (Kristie L. Ebi, IPCC WGII TSU)	weakened the statement
116	50922	17	9	1	0	0	Section 17.2.2.4. The author team should provide citations for statements in this section as appropriate. (Katharine Mach, IPCC WGII TSU)	added
117	40938	17	9	3	9	8	This is a politically sensitive and contentious issue. At the very least statements regarding the distribution of adaptation costs and emissions responsibility need to be referenced (Frances Moore, Stanford University)	added

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
118	35831	17	9	5	9	6	The statement "There is certainly an uneven distribution of costs of climate change and this does not match up with the distribution of emissions so there may be some need for compensating transfer payments to overcome losses" could be backed up by the following reference: Hof AF, den Elzen MGJ, van Vuuren DP (2010) Including adaptation costs and climate change damages in evaluating post-2012 burden-sharing regimes. Mitigation and Adaptation Strategies for Global Change 15:19-40 (Andries Hof, Netherlands Environmental Assessment Agency)	added
119	53187	17	9	6	9	8	And what has been concluded? (Kristie L. Ebi, IPCC WGII TSU)	conclusions added
120	36955	17	9	11	9	30	The economics of the interplay between adaptation and mitigation is underexposed to my opinion. The mix of adaptation and mitigation measures should be such that damage reduction can be achieved at lowest possible marginal social cost. Making reference to Koetse and Rietveld (2012) would be valuable here I think. A figure such as Fig 2. on p.275 of the mentioned study could be interesting and clarifying. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	text changed, no space for figure
121	48776	17	9	13	0	31	this part has to be linked with chapter 14 p9 and could add deeper analysis (ALEXIA LESEUR, CDC Climat Research)	Some cross-linking is now in placec
122	40957	17	9	13	30	0	Reference IAM modeling work on the relationship between adaptation and mitigation using AD-DICE (De Bruin, K. C., Dellink, R. B., & Agrawala, S. (2009). Economic Aspects of Adaptation to Climate Change: Integrated Assessment Modelling of Adaptation Costs and Benefits. OECD Environment Working Papers. Paris: Organization for Economic Cooperation and Development; Felgenhauer, T., & De Bruin, K. C. (2009). The Optimal Paths of Climate Change Mitigation and Adaptation Under Certainty and Uncertainty. International Journal of Global Warming, 1(3), 66-88.) (Frances Moore, Stanford University)	References included
123	43907	17	9	15	9	15	" It is" instead of "it be" (Calvin Atewamba, UNECA)	done
124	43908	17	9	18	9	18	"level" instead of " lever" (Calvin Atewamba, UNECA)	dropped phrase
125	42263	17	9	25	0	25	It is not necessarily correct to say that mitigation makes adaptation more efficient. It depends on how adaptation is implemented. Lower global warming brought about by mitigation could reduce the efficiency of home insulation that is installed to insulate against the cold. (Adolf Stroombergen, Infometrics)	weakened statement
126	41457	17	9	28	9	28	It would be good to highlight that there is a need to find a way how to design climate finance funds so that they encourage integrated (mitigation and adaptation) approaches to tackle climate change. (Sven Harmeling, Germanwatch)	We added a remark on this
127	53188	17	9	30	9	30	generalizing air conditioning? (Kristie L. Ebi, IPCC WGII TSU)	altered wording
128	35832	17	9	33	0	0	Section 17.2.4: This section provides a local example of an inter-relationships between adaptation and residual damages. It could be noted that these relationships have been analysed on a global and world regional scale as well. See for instance de Bruin KC, Dellink RB, Tol RSJ (2009) AD-DICE: An implementation of adaptation in the DICE model. Clim Change 95:63-81, or Figures 4 and 5 in Hof AF, de Bruin KC, Dellink RB, den Elzen MGJ, van Vuuren DP (2009) The effect of different mitigation strategies on international financing of adaptation. Environ Sci Policy 12:832-843. (Andries Hof, Netherlands Environmental Assessment Agency)	This section has been condensed and the discussion focussed more to meet our word limit
129	41458	17	9	42	9	51	In this context the currently ongoing debate on "Loss & Damage" should be mentioned. (Sven Harmeling, Germanwatch)	We don't understand this remark but there is reference to loss and damage now
130	54227	17	9	49	9	51	Are there any answers in the literature to this question? If so, it would be useful to assess them here. (Michael Mastrandrea, IPCC WGII TSU)	Not good ones
131	53189	17	10	3	10	25	At least one nonmarket example would be helpful. (Kristie L. Ebi, IPCC WGII TSU)	Space constraints are binding
132	43201	17	10	8	0	0	replace 'ure' with 'Figure' (Judith McNeill, University of New England)	done
133	50923	17	10	38	10	38	"likely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	done
134	38600	17	10	45	10	46	In the section 17.2.5 on Defining What Constitutes the Cost of Adaptation, the issue of adaptation deficits (deficits in dealing with current climate-related risks) vis-à-vis incremental adaptation to climate change should be highlighted. For an empirical example, note the case study of coastal Bangladesh in World Bank (2012): The Cost of adapting to Extreme Weather Events in a Changing Climate at http://siteresources.worldbank.org/INTBANGLADESH/Resources/BDS28ClimateChange.pdf and World Bank (2010): Economics of Adaptation to Climate Change- Bangladesh at http://climatechange.worldbank.org/sites/default/files/documents/EACC_Bangladesh.pdf (Susmita Dasgupta, The World Bank)	cross referenced to deficit discussion+l143
135	38601	17	10	45	10	47	In the section 17.2.5 on Defining What Constitutes The Cost of Adaptation, for examples of "reasonable counterfactual baseline case" (Reference: line 45-47, page 10), please note the baselines defined for inland flood and cyclone for Bangladesh in World Bank (2012): The Cost of adapting to Extreme Weather Events in a Changing Climate at http://siteresources.worldbank.org/INTBANGLADESH/Resources/BDS28ClimateChange.pdf If 2012 is beyond the cutoff date of the background literature of IPCC WGII AR5, please consider an earlier analysis presented in the World Bank (2010): Economics of Adaptation to Climate Change- Bangladesh at http://climatechange.worldbank.org/sites/default/files/documents/EACC_Bangladesh.pdf (Susmita Dasgupta, The World Bank)	added
136	41459	17	10	45	10	52	As this paragrpah talks about the conept of financing the additional costs of adaptation, it would be good to mention that the LDCF in fact applies this concept. (Sven Harmeling, Germanwatch)	No longer relevant in the SOD
137	47053	17	10	45	10	52	This should be merged with the concepts in Chapter 17, Page 8, line 19. Section 17.2.2.3. Project-Based Adaptation, dealing with the same ideas. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	Some rearrangement has been done
138	50924	17	10	45	11	7	The author team should provide background citations for this information as appropriate. (Katharine Mach, IPCC WGII TSU)	No longer relevant in the SOD

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
139	41460	17	11	1	11	7	The problem of labeling adaptation projects also appears to be very important in regard to counting the financial contributions that were spent on climate change adaptation activities (e.g. OECD Adaptation Marker). (Sven Harmeling, Germanwatch)	Agreed. But this section has been condensed and there is no space to explore this issue
140	53190	17	11	5	11	7	What about when the option is justified as welfare-enhancing but is not or will not be funded? (Kristie L. Ebi, IPCC WGII TSU)	This point is covered elsewhere under adaptaion deficit
141	47054	17	11	10	0	0	Section 17.2.6. Methodological Considerations. I find very interesting the methods summary in Table 17-1. However, I think the section will be more helpful if the different methodologies presented in the Table would be addressed in the text in some more detail. The categories are broad enough to need some more particulars on specific tools. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	We expanded the table some but feel it is appropriate length given the total document page limits
142	40939	17	11	10	13	17	References seem to be missing making review difficult. (Frances Moore, Stanford University)	We feel references are appropriate and present
143	54228	17	11	36	11	36	Please explain this point further, or delete. (Michael Mastrandrea, IPCC WGII TSU)	Deleted point
144	53191	17	11	41	11	44	At least one nonmarket example would be helpful. (Kristie L. Ebi, IPCC WGII TSU)	added
145	43909	17	11	49	11	49	missing the word " of " between " costs" and "adaptation" (Calvin Atewamba, UNECA)	added
146	48425	17	12	13	12	33	For the World Bank project and book 'Natural Hazards - Unnatural Disasters' several background studies were carried out, including various that dealt with speed and extent of recovery in relation to type and size of damage and developments stage of the country. see http://www.gfdrr.org/gfdrr/node/284 (Adriaan Perrels, Finnish Meteorological Institute FMI)	We added some remarks on this
147	50925	17	12	20	12	20	Would the word "scenarios" be preferable here to "predictions"? (Katharine Mach, IPCC WGII TSU)	changed word
148	35833	17	12	42	12	43	"Dietz et al (2007) note that a low discount rate is almost always needed for uncertain dangerous climate change in the far-off future to matter." A similar conclusion has been drawn by Hof et al (2010), who find that for relatively high discount rates, a minimax regret approach (assuming high damages) does not lead to more stringent climate targets. Ref: Hof AF, van Vuuren DP, den Elzen MGJ (2010b) A quantitative minimax regret approach to climate change: Does discounting still matter? Ecological Economics 7:43-55. (Andries Hof, Netherlands Environmental Assessment Agency)	added
149	50926	17	12	49	12	53	By the second-order draft, the chapter team should supply all missing references on these lines. (Katharine Mach, IPCC WGII TSU)	Done
150	43910	17	12	52	12	52	incomplete reference : . Guesnerie () and Sterner and Persson () (Calvin Atewamba, UNECA)	Done
151	35834	17	13	4	13	6	Here, some references could be added (instead of referring to "Some authors"). For instance: Hof AF, den Elzen MGJ, van Vuuren DP (2008) Analysing the costs and benefits of climate policy: Value judgements and scientific uncertainties. Glob Environ Change 18:412-424 Hope C (2006) The social cost of carbon: what does it actually depend on? Clim Policy 6:565-572. (Andries Hof, Netherlands Environmental Assessment Agency)	added
152	44405	17	13	20	0	32	This part on the linkages between adaptation and development needs to be informed by the rich discussion in the previous chapters. (Linda Sygna, University of Oslo)	We have looked at this but space prevents us adding more than we now have
153	40941	17	13	20	14	2	Some mention needs to be made here of the historical relationship between economic development and increasing per-capita GHG emissions, which is the most obvious problem arising from thinking of adaptation simply as business-as-usual development. For example, these interrelationships are described in the SREX (Figure SPM.1). (Frances Moore, Stanford University)	This seems more realted to mitigation tha adaptation
154	44406	17	13	22	0	23	This statement needs a reference, on the link between improved adaptive capacity and enhanced economic development in lesser-developed countries. (Linda Sygna, University of Oslo)	We dealt with this
155	43202	17	13	26	0	0	replace 'thorough' with 'through' (Judith McNeill, University of New England)	Done
156	53192	17	13	34	13	37	Your argument could be strengthened by including the SREX statisitic that extreme events and disasters cost developed countries 0.1% of GDP (if I recall correctly) and cost middle income countries 1% of GDP. (Kristie L. Ebi, IPCC WGII TSU)	We have added words to this effect
157	44408	17	13	35	0	0	SREX concludes that economic losses expressed as a proportion of GDP are higher in developing countries. The total economic losses are higher in developed countries, and the middle-income countries with rapdily expanding asset bases have borne the largest burden. These finding are relevant to the discussion on how economic development affects vulnerability and adaptive capacity. (Linda Sygna, University of Oslo)	We have added words to this effect
158	44407	17	13	35	0	38	This statement needs to be elaborated. "To assume that development would diminish vulnerability and raise autonomous adaptation capability" is not what we observe and it is not what is reported in the literature. It is more complex than this, as vulnerability is not a generic condition, it varies among social groups, from one locatio to the next and it varies over time. (Linda Sygna, University of Oslo)	Rewritten to capture this suggestion
159	54229	17	13	35	13	35	The SREX SPM states, "Economic, including insured, disaster losses associated with weather, climate, and geophysical events are higher in developed countries. Fatality rates and economic losses expressed as a proportion of gross domestic product (GDP) are higher in developing countries (high confidence)." Please revise this point to reflect the SREX finding, and add a proper citation to the SREX SPM. (Michael Mastrandrea, IPCC WGII TSU)	We added words to this effect
160	43911	17	13	41	13	41	missing reference: World Bank (2010). The Economics of Adaptation to Climate Change. Synthesis Report, The World Bank. (Calvin Atewamba, UNECA)	Reference dropped because of space considerations
161	53193	17	13	51	13	51	It would be good to have the title of the report accurate. (Kristie L. Ebi, IPCC WGII TSU)	Changed as suggested
162	43912	17	13	53	13	53	missing the word "of" between " component" and "long-term" (Calvin Atewamba, UNECA)	We shortened the wording

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
163	40942	17	14	7	14	13	Reference examples for agriculture are Schneider, Easterling and Mearns (2000), (with following, related studies by Chhetri et al. (2010), and Easterling et al. (2003)) or Lybbert and Bell (2010). (References: Lybbert, T. J., & Bell, A. (2010). Stochastic Benefit Streams, Learning, and Technology Diffusion : Why Drought Tolerance is Not the New Bt. AgBioforum, 13(1), 13-24; Schneider, S. H., Easterling, W. E., & Mearns, L. O. (2000). Adaptation: Sensitivity to natural variability, agent assumptions and dynamic climate changes. Climatic Change, 45(1), 203-221; Chhetri, N., Easterling, W. E., Terando, A., & Mearns, L. (2010). Modeling Path Dependence in Agricultural Adaptation to Climate Variability and Change. Annals of the Association of American Geographers, 100(4), 894-907; Easterling, W. E., Chhetri, N., & Niu, X. (2003). Improving the Realism of Modelling Agronomic Adaptation to Climate Change: Simulating Technological Substitution. Climatic Change, 60, 149-173.) (Frances Moore, Stanford University)	Thanks for these suggestions. Some of them are now included.
164	53194	17	14	12	14	12	Who decides that decision-making is more realistic? What criteria were used? (Kristie L. Ebi, IPCC WGII TSU)	We agree with the observation. We have changed the paragraph and removed the sentence referring to "realistic" decision making.
165	50927	17	14	16	0	0	Section 17.3.1. As appropriate, the chapter team should consider providing further citations for this section, for example to relevant background sources. (Katharine Mach, IPCC WGII TSU)	This section has been removed in the revised version of the chapter.
166	53195	17	14	16	14	44	Please coordinate with the adaptation chapters. Also, provide more examples than sea level rise. (Kristie L. Ebi, IPCC WGII TSU)	We decided to use SLR as an illustrative example to show how successive complexities make the design of adaptatoin solution more difficult.
167	39508	17	14	27	0	29	Redundant. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	This section has been removed in the revised version of the chapter.
168	54230	17	14	27	14	33	This introduction of private and public adaptation is somewhat redundant with the previous introduction earlier in the chapter and could be shortened. (Michael Mastrandrea, IPCC WGII TSU)	This section has been removed in the revised version of the chapter.
169	39509	17	14	38	0	38	"Private" instead of "spontaneous" - as argued earlier in the chapter!? (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	This section has been removed in the revised version of the chapter.
170	47055	17	14	52	15	2	To measure welfare in uncertainty contexts is not an easy task. I would like the authors mentioning something about the approach on risk behaviour modelling to link the discussion on the objectives with the Chapter 17, Page 17, Section 17.3.5. Behavioural Obstacles to Adaptation and also with the decision making problem in Chapter 17, Page 19, Section 17.3.7. Economic Decision-making with uncertainty. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	Behaviors are discussed later in the chapter (see section 17.3.4 and 17.5)
171	48303	17	15	0	0	0	No mention of the tools of adaptation (Malini Nair, Indian Institute of Science)	We discuss economic instruments in section 17.5
172	52135	17	15	1	15	1	It would be beneficial to also reference the definition of adaptation in this report's glossary. (Katharine Mach, IPCC WGII TSU)	The new definition will be incorporated as the AR5 definition is firmed up.
173	54231	17	15	1	15	2	It would be useful to incorporate the AR5 definition of adaptation here in the next version of the chapter. (Michael Mastrandrea, IPCC WGII TSU)	The new definition will be incorporated as the AR5 definition is firmed up.
174	50928	17	15	4	15	4	"Likely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The part with the term "likely" is no longer in the remaining text of the shortened chapter.
175	43913	17	15	9	15	9	incomplete reference: Seo et al (Calvin Atewamba, UNECA)	The reference is no longer part of the remaining text after the shortening of the chapter.
176	50929	17	15	13	15	13	The citations to literature mentioned here should be fully completed by the second-order draft. (Katharine Mach, IPCC WGII TSU)	this will be completed in the next version.
177	41461	17	15	18	15	18	Please add that climate change not only implies trade-offs but also synergies with other policy goals. (Sven Harmeling, Germanwatch)	The part on trade-offs has been removed from the shortened version of the chapter
178	43203	17	15	24	0	0	delete 'a' ? (Judith McNeill, University of New England)	This correction has been made
179	40943	17	15	24	15	30	A useful addition here might be a discussion of the distinction made in, for example, Stafford-Smith et al. (2011) between incremental and transformative adaptation, the former referring to achieving existing goals in the face of climate change and the latter to changing goals in response to climate change. (Stafford-Smith, M., Horrocks, L., Harvey, A., & Hamilton, C. P. (2011). Rethinking Adaptation for a Four Degree World. Philosophical Transactions of the Royal Society A, 369, 196-216.) (Frances Moore, Stanford University)	This section has been shortened, and the suggestions could not be incorporated due to limited space.
180	53196	17	15	24	15	30	Please provide an example other than sea level rise. (Kristie L. Ebi, IPCC WGII TSU)	This section has been revised, and no longer has the example of sea level rise
181	35466	17	15	39	15	39	To specify the references (Coase, Williamson) as follows: …(Coase, 1937 and 1960; Williamson, 1979). (M. Dolores Garza-Gil, University of Vigo)	Thank you, these have been captured.
182	50930	17	15	39	15	46	The incomplete citations on lines 39 and 46 must be supplied by the second-order draft. (Katharine Mach, IPCC WGII TSU)	There are no longer missing citations in the revised version.
183	43204	17	16	2	0	0	P16, line 2: insert 'home' in 'it may not be profitable enough for a homeowner to insulate his home…' (Judith McNeill, University of	This part is no longer in the revised version of the chapter.
184	39510	17	16	7	16	13	Even if land prices reflect the risk levels correctly, additional public action might be needed in order to prevent certain (income and wealth) groups from moving to risk-prone and thus cheap areas. Insurability, regulations and credible no-bail-outs by the government come to mind. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	This section has been significantly reduced to meet space limits, and has thus changed.
185	53197	17	16	7	16	13	Please provide an example other than sea level rise. (Kristie L. Ebi, IPCC WGII TSU)	This section has been revised, and no longer has the example of sea level rise
186	53198	17	16	15	16	24	Other issues to possibly raise are the costs of ecosystem services and equity. (Kristie L. Ebi, IPCC WGII TSU)	This is discussed later in the section.
187	53199	17	16	34	16	37	You also are assuming the future is willing to pay. (Kristie L. Ebi, IPCC WGII TSU)	This section has been significantly revised.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
188	43205	17	17	9	0	0	P17, line 19: delete 's' of 'households' (Judith McNeill, University of New England)	This part is no longer in the revised version of the chapter.
189	53200	17	17	11	17	23	Please provide an example other than sea level rise. (Kristie L. Ebi, IPCC WGII TSU)	This part is no longer in the revised version of the chapter.
190	50931	17	17	15	17	15	"likely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This part is no longer in the revised version of the chapter.
191	48426	17	17	31	18	13	In relation to mitigation policies and wider scoped sustainability policies (and sustainable consumption promoting policies) lifestyle oriented studies have been (are again) quite popular. Indeed information instruments can be helpful in combination with other (price) instruments. A often overlooked aspect however is that lifestyles evolve over time - also after some policy mix has achieved favourable lifestyle changes. See Buensdorff, G. – Cordes, C. (2008): Can sustainable consumption be learned? A model of cultural evolution, Ecological Economics, Volume 67, Issue 4, pp.646–657. (Adriaan Perrels, Finnish Meteorological Institute FMI)	Policies to influence behaviors are discussed later in the chapter.
192	45104	17	17	41	0	0	Also note effects of path dependency, e.g. The status quo is often privileged in policy; and once people have been given rights it is far harder to reclaim them than it would have been to deny them in the first place (cf. Debates about property rights and enforced retreat from sea level rise)., (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	This part is no longer in the revised version of the chapter.
193	50932	17	17	48	17	48	The citation must be supplied by the second-order draft. (Katharine Mach, IPCC WGII TSU)	This part is no longer in the revised version of the chapter.
194	50933	17	18	1	18	1	"likely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This part is no longer in the revised version of the chapter.
195	40944	17	18	4	18	5	The Tversky and Kahneman (1974) reference would seem to be the wrong one here. Though the paper does discuss decision heuristics and misperception of probabilities, there is no discussion of how these heuristics or biases would respond to unobserved changing probabilities. In fact, there has been fairly little behavioral work regarding decision heuristics in stochastic, non-stationary environments, though a review is available in Cohen, McClure & Yu (2007). (Cohen, J. D., McClure, S. M., & Yu, A. J. (2007). Should I stay or should I go? How the human brain manages the trade-off between exploitation and exploration. Philosophical Transactions of the Royal Society of London - Series B: Biological Sciences, 362(1481), 933-942. The Royal Society.) (Frances Moore, Stanford University)	Correct. Thanks for pointing that out. We corrected the citation and introduced the additional one.
196	43206	17	18	7	0	0	P18, line 7: replace 'important' with 'importance' (Judith McNeill, University of New England)	This part of the section is no longer in the revised version.
197	50934	17	18	7	18	13	As appropriate, the chapter team should supply citations for these statements. (Katharine Mach, IPCC WGII TSU)	The statements in the revised version are well referenced.
198	43914	17	18	19	18	19	incomplete reference: fuessel (Calvin Atewamba, UNECA)	The reference has been completed
199	50935	17	18	19	18	28	The incomplete citations on lines 19 and 26-28 must be supplied by the 2nd order draft. (Katharine Mach, IPCC WGII TSU)	The citations have been completed in the revised text.
200	43915	17	18	25	18	28	incomplete paragraph. (Calvin Atewamba, UNECA)	The section has been revised, and now has complete paragraphs.
201	40945	17	19	1	19	33	The title of the section does not seem to match the content, which is almost entirely a description of the sources of uncertainty in impact projections. (Frances Moore, Stanford University)	The title of the section has been changed.
202	39511	17	19	3	19	33	There is also uncertainty about the (economic) consequences of impacts, the actual effects and effectiveness of measures and about the future political framework, e.g. regarding climate change issues. See for example Dannenberg, Mennel, Osberghaus, & Sturm (2009): The Economics of Adaptation to Climate Change – The Case of Germany. Discussion Paper No. 09-057, Zentrum für Europäische Wirtschaftsforschung (ZEW), Mannheim. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	The section now states that climate change adds a layer uncertainty on pre-existing ones, which include the one mentioned in the comment. Some of this uncertainty also corresponds to the 3rd bullet point.
203	45559	17	19	5	21	4	Section on economic decision making with uncertainty can benefit from the inclusion of the state-contingent approach as commented above under Chapter 1 and 2. When outcomes are uncertain and solutions to uncertain events correspond to diffrent states of nature, such as rainfall or temperature patterns, adaptation cations can be tailored to suit ecah state of nature rather than the entire spectrum of possible events. (Thilak Mallawaarachchi, The University of Queensland)	Scenario-based approaches are state-contingent approaches.
204	53201	17	19	8	19	16	Please use the WGI projections. (Kristie L. Ebi, IPCC WGII TSU)	We did not go into details due to space limits, but have made reference to WGI.
205	50936	17	19	9	19	29	The author team may wish to consider further referencing and cross-referencing for these bullets. For example, it would be helpful to provide a cross-reference to the WG1 5th assessment report for lines 9-10. For lines 17-23, the author team could provide further citations and/or cross-references to chapter 3 or to the WG1 5th assessment report. For lines 26-28, the chapter team may also wish to consider further citations or cross-references to chapters 5, 6, 29, 30. (Katharine Mach, IPCC WGII TSU)	this part has been reduced due to space limits, but we have also referenced AR5 WG1 in the summarised version of the section.
206	53202	17	19	13	19	16	Please include consideration of fat tails (Kristie L. Ebi, IPCC WGII TSU)	Fat tails is an interesting concept but only one aspect of uncertainty. Considering space limits, we did not get into these details here.
207	53203	17	19	30	19	30	Other sources of uncertainty are future demographics, including health estimates, and uncertainty about effectiveness. (Kristie L. Ebi, IPCC WGII TSU)	The section now states that climate change adds a layer uncertainty on pre-existing ones, which include the one mentioned in the comment.
208	53204	17	19	33	19	33	Please use AR5 material. (Kristie L. Ebi, IPCC WGII TSU)	We have now referred to AR5 as suggested.
209	53205	17	19	41	19	51	Adding a nonmarket example would be helpful. (Kristie L. Ebi, IPCC WGII TSU)	Nonmarket impacts are discussed later in the chapter.
210	36956	17	20	25	20	34	Suggestion: to clarify the concept of 'option value' a bit more an example may be given. Making a spatial reservation for the construction of a runway at an airport because uncertainty about the future dominating wind direction is still large is an example (see Koetse and Rietveld, 2012, page 271). (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	We clarified the concept, but could not go into more detail because of limited space.
211	43916	17	20	33	20	33	inclomplete reference : Kolstad and XX (Calvin Atewamba, UNECA)	This citation has been removed

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
212	50937	17	20	33	20	34	The incomplete citations here should be completed by the second-order draft. (Katharine Mach, IPCC WGII TSU)	The incomplete citations have been removed.
213	36957	17	20	34	20	34	The Heal and Kristrom (2003) reference is missing in the reference list. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	This reference has been added to the list
214	35243	17	20	38	20	39	(Gilboa 2009, 2010). (antoine leblois, Cired)	this will be corrected
215	35244	17	20	38	20	39	Ligne 38 and 39, references are not provided at the end of the chapter. (antoine leblois, Cired)	These will be added
216	50938	17	20	54	20	54	"unlikely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This case appears acceptable to the author team.
217	52136	17	21	10	21	11	For the definition of "maladaptation" here, the author team should consider also cross-referencing the definition provided in this report's glossary. (Katharine Mach, IPCC WGII TSU)	This will be done as the glossary develops
218	53206	17	21	10	21	11	Please use AR5 glossary. (Kristie L. Ebi, IPCC WGII TSU)	Reference has been made to AR5 (see section 17.3.6.1)
219	40946	17	21	17	21	26	It is unclear why the examples in the beginning of this paragraph would be considered maladaptations simply because they are adaptations only to a limited rise in temperature. No adaptation action will be adaptive under all temperature ranges, but that doesn't mean they are necessarily maladaptations simply because they are temporary. Instead this determination depends on the length of the investment, the rate of climate change and the discount rate. Under this definition essentially all adaptation actions would potentially be maladaptive. Moreover, this definition conflicts with the definition of maladaptation in Chapter 14, where it is used to refer to adaptation actions with indirect effects of increasing vulnerability to climate change. (Frances Moore, Stanford University)	Examples have been changed.
220	50939	17	21	28	21	34	As appropriate, the author team may wish to provide background citations for these statements. (Katharine Mach, IPCC WGII TSU)	The part being referred to is is no longer in the revised chapter.
221	50940	17	21	36	21	36	It would be preferable to specify what this acronym stands for, to ensure clarity for the reader. (Katharine Mach, IPCC WGII TSU)	The part being referred to is is no longer in the revised chapter.
222	45105	17	21	46	0	0	But note that these measures mst be reviewed to avoid maladaptation (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	The part being referred to is is no longer in the revised chapter.
223	50941	17	22	3	22	8	As possible, the chapter team may wish to provide background citations for these statements. (Katharine Mach, IPCC WGII TSU)	This part has been removed from the revised chapter.
224	53207	17	22	13	22	13	Ebi and Burton do not use a multi-metric approach to recent decision making. (Kristie L. Ebi, IPCC WGII TSU)	This part has been lost due to space limitations.
225	42264	17	23	5	0	6	That statement is not correct. A negative productivity shock, even with no change in employment, could lead to a large drop in output. I suggest deleting the sentence. (Adolf Stroombergen, Infometrics)	This section has been removed from the revised chapter
226	53208	17	23	5	23	6	What happens if it is assumed less than full employment? (Kristie L. Ebi, IPCC WGII TSU)	This section has been removed from the revised chapter
227	46952	17	23	9	23	26	For balance the section on Non-market cost and benefits should mention the extensive literature critical of 'revealed preference and stated preference' methods such as Common MS, Blamey RK and Norton TW, (1993 'Sustainability and environmental valuation' Environmental Values, 2(4), 299-334); O'Connor M (2002, 'Reframing environmental valuation: Reasoning about resource use and the redistribution of sustainability', in Abaza H and Baranzini A (Eds) Implementing sustainable development: Integrated assessment and participatory decision-making processes, Cheltenham: Edward Elgar/UNEP) and Foster J (Ed) (1997, Valuing nature?: Economics, ethics and environment, London: Routledge). (Mark Charlesworth, Keele University)	The section has been re-written
228	54232	17	23	12	23	14	Have there been no good overviews published more recently than 2004? (Michael Mastrandrea, IPCC WGII TSU)	The author team finds that this is the best source of information.
229	40947	17	23	17	23	18	Change "asking" to "observing" in both locations since this paragraph is making a point of distinguishing revealed preference approaches (that don't involve asking people questions but instead involve observing market data) from contingent valuation (which does involve asking people questions directly). (Frances Moore, Stanford University)	The suggested correction has been made.
230	50942	17	23	17	23	21	The chapter team should provide citations for these statements as appropriate. (Katharine Mach, IPCC WGII TSU)	Additional citations have been provided to back up the statements.
231	53209	17	23	39	23	42	What are the implications of this study? (Kristie L. Ebi, IPCC WGII TSU)	This text has been removed from the revised chapter
232	50943	17	23	41	23	41	"likely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This text has been removed from the revised chapter
233	50944	17	23	42	23	42	The intended citations should be fully specified here. (Katharine Mach, IPCC WGII TSU)	This text has been removed from the revised chapter
234	53210	17	23	46	23	46	How was plausibility determined? (Kristie L. Ebi, IPCC WGII TSU)	This text has been removed from the revised chapter
235	39512	17	23	49	0	0	Section 17.4: It should be mentioned, that it also works the other way round, i.e. some policies can have co-benefits in adaptation; see e.g. the preservation of ecosystems. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	We agree, and this is covered in the intro paragraph of 17.4
236	53211	17	24	8	24	8	There is a growing body of evidence of co-benefits. (Kristie L. Ebi, IPCC WGII TSU)	This part has been dropped during chapter revisions
237	50945	17	24	9	24	9	"likely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This part has been dropped during chapter revisions
238	45560	17	24	14	24	45	Broad economic consideration of adaptation - this is an important aspect of adaptation policy that provides opportunities for 'mainstreaming' adaptation. In that way apaptaion can be considered normal business practice to mitigate consequences of environmental variation beyond immediate control of decision makers. Reflecting the proportion of private nad public benefits, public incentives may then be offered to promote adaptation in the broader public interest. (Thilak Mallawaarachchi, The University of Queensland)	This is a valid comment and it is addressed in the sentence you commented on. Spaces precludes from going further.
239	53212	17	24	19	24	40	Other examples are transport policies, and use of improved cook stoves. (Kristie L. Ebi, IPCC WGII TSU)	These are relevant suggestions, but space limitations prevent us from adding more examples without taking out one of the ten we already provided.
240	43207	17	25	7	0	0	P25, line 7: replace 'alternative' with 'alternatives' (Judith McNeill, University of New England)	This part has been dropped in the revisions and shortening of the chapter.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
241	40948	17	25	17	25	18	“the socially optimal allocation of adaptation investment will differ from the private optimum…” – this seems true only to the extent that ancillary benefits are not also captured by the actor undertaking the adaptation. (Frances Moore, Stanford University)	Due to limited space, we could not go into details, but page 13 line 10-14 capture this comment i.e. there are arguments to the contrary.
242	50946	17	25	43	25	43	"likely" -- The chapter team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This part has been dropped during revisions to shorten the chapter.
243	53213	17	26	11	26	33	Please coordinate with Chapter 20 on sustainable development. (Kristie L. Ebi, IPCC WGII TSU)	We have referred to Chapter 20, and noted the close link, leaving chapter 20 to address the details. We will however make specific reference to those sections of chapter 20 as it gets revised.
244	44412	17	26	15	0	0	Would it be more appropriate to say that adaptation measures are not included in other policies, because they would certainly affect other policies (and the adaptation outcome is in turn affected by other policies). Decisions to restrict building activity close to the sea (to prevent damages from sea level rise) would affect coastal planning policies. Clarification and examples would be good in this part. (Linda Sygna, University of Oslo)	We have maintained the original formulation in order to keep the sense of the section i.e. distinguishing between stand-alone and mainstreamed adaptation actions. The fact that adaptation measures are not always included in other policies is still correct, but loses the distinction.
245	35641	17	26	16	0	0	UNFCCC (2002) highlights the need for mainstreaming NAPAs. So NAPAs are not intended to be a stand-alone framework, although mainstreaming efforts have not been very successful in many LDCs. (Norio Saito, Graduate School of Science and Engineering, Ibaraki University)	The need for mainstreaming as raised by the UNFCCC is reasonable, but for this assessment, we are refering to NAPAs as they are and not as UNFCCC would like them to be.
246	39513	17	26	36	0	0	Section 17.5: I would like to suggest to rather call this section "Instruments to provide incentives" and subdivide it into "Economic instruments" on the one hand and "Other instruments" on the other hand. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	We have re-worded the title of the section and also reorganised it to address this comment and other considerations, but not as suggested, so that we remain focussed on economic and economic related instruments.
247	41199	17	26	36	0	0	Section 17.5 Pg26 line 36 – An emerging tool being discussed in the private sector is the inclusion of climate change risk under corporate disclosure regulations. (National Round Table on the Environment and the Economy, 2012. Facing the Elements: Building Business Resiilence in a Changing Climate (Advisory Report). Ottawa, Canada. 136p.; Carbon Disclosure Project https://www.cdproject.net/en-US/Pages/About-Us.aspx - their work on water disclosure) provides incentives for reducing climate related risks and vulnerabilities that in turn can catalyse adaptive action. (Susan Evans, WWF-Canada)	This tool has been added (see 17.5.1)
248	53214	17	26	43	26	43	Please defined PPP. (Kristie L. Ebi, IPCC WGII TSU)	The acronym has been defined in the text.
249	42771	17	26	48	0	0	Section 17.5.1: This is a good summary of the ways in which insurance interrelates with climate adaptation. It may also be useful to highlight more directly the ways that insurance can facilitate adaptive outcomes and encourage resilience. Other useful sources may include: Ross et al., Limiting Liability in the Greenhouse, 43 A Stan. J. Int'l L. 251 (2007) ; Hecht, Climate Change and the Transformation of Risk, 55 UCLA L. Rev. 1559 (2008); and various publications by Mills, including Insurance in a Climate of Change, 309 Science 1040-1044 (2005). (Sean Hecht, UCLA)	Due to page number limitations, it was not possible to expand the discussion as suggested.
250	50947	17	26	54	26	54	"medium confidence" -- As calibrated uncertainty language, this phrase should be italicized. (Katharine Mach, IPCC WGII TSU)	Confidence level has been dropped during the shortening of the section.
251	35245	17	27	1	28	10	The issue of 'macro' insurances are discuted, however a large literature emerged on 'micro' insurance at a meso of micro (individual) level for farmers in developping countries. Such tool is seen as a usefull one for adaptation of developping countries, for whoch agricultural development is often a major concern. We thus think it could be interesting to make a reference to such development, that overcame the pilot scale in India, Ethiopia, Kenya... (antoine leblois, Cired)	This has been noted as we search for references to the suggestions.
252	35246	17	27	1	28	10	The insurance is showed to be an adaptation mean, however climate change and trend in the time series of climate indices are a huge problem when dealing with such policy tool, since insurers and reinsurer do not want: to insure covariate risks (and thus less poolable) without significant risk loadings. Weather derivatives also encounter some similar problems, trends in indices (temperatures, rainfall) are a strong desincentive for insuring those countries as it was the case in Morocco in 2001, the world bank created a pool of private insurer and reinsurer that feared the decreasing trends in rainfall and abandonned the project. (antoine leblois, Cired)	The problems of insurance as an icentive mechanism is discussed on page 14 line 25-32 of the revised chapter.
253	53215	17	27	13	27	15	The World Bank is developig new insurance instruments for developing countries; see Chapter 15. (Kristie L. Ebi, IPCC WGII TSU)	reference has been made to initiatives in developing countries (see page 14 line 20-23).
254	50948	17	27	14	27	15	It would be preferable to indicate more explicitly the citation supporting this statement. (Katharine Mach, IPCC WGII TSU)	We have added a reference as suggested (Linneroth-Bayer).
255	40949	17	27	21	27	21	point (ii) seems to be a consequence of point (i), not a separate pathway. (Frances Moore, Stanford University)	We do not agree with the view. One is pre-event and one is post-event.
256	40950	17	28	11	28	43	It might be worth combining this section with the PES, Resource Pricing, and Charges / Subsidies section. The majority of the material in these sections is repeated in these later sections. (Frances Moore, Stanford University)	This section has been revised and shortened to reduce overlaps with the other sections.
257	54233	17	28	31	28	34	It would be useful to clarify the considerations behind such large ranges for possible discount rates. What is the rationale for setting these bounds? (Michael Mastrandrea, IPCC WGII TSU)	This part has been dropped during the shortening of the chapter.
258	40951	17	28	41	28	43	In general, prices should reflect scarcity (as described in the improved resource pricing section). As long as this is true (and in the absence of externalities), the rebound effect is not a problem as it simply reflects the optimal use of the resource and no corrective pricing measures are necessary. (Frances Moore, Stanford University)	We have kept the original text. The trouble is that prices do not always reflect scarcity so rebound effect is relevant.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
259	45176	17	30	2	30	4	While relatively recent, there is a growing literature on market mechanisms for adaptation. See: Schultz, K., (2012), "Financing climate adaptation with a credit mechanism: initial considerations", Climate Policy Vol. 12, Issue 2, 2012, pages 187-197. http://www.tandfonline.com/doi/abs/10.1080/14693062.2011.605563 Baca, Matthew, Call for a Pilot Program for Market-Based Adaptation Funding (September 3, 2010). New York University Journal of International Law and Politics (JILP), Vol. 42, p. 1337, 2010. Available at SSRN: http://ssrn.com/abstract=1685027 Miles, K. (2011): "Investing in Adaptation: Mobilising Private Finance for Adaptation in Developing States," 2 Carbon & Climate Law Review, p. 190-208. Persson, A. (2011): "Institutionalising climate adaptation finance under the UNFCCC and beyond: Could an adaptation 'market' emerge?", Stockhold Environment Institute, Working Paper - 2011. Butzengeiger-Geyer, S., Kohler, M. and Michawlowa, A. (2011): "Driving Meaningful Adaptation Action through an Adaptation Market Mechanism," FNI Climate Policy Perspectives 3, December, 2011. Forrister, D. (2012): "Eyes turn to adaptation finance", Global Carbon, Spring 2012, p. 20-21. Schultz, K., Mader, R., Adler, L., Tapley, B. (2012): "Using a Market Mechanism to Prioritize Climate Adaptation and Enhance Adaptive Capacity", poster session 3, no. 36, Planet Under Pressure Conference, London, 26-29 March 2012, abstract available at: http://elsevier.conference-services.net/reports/template/onetextabstract.xml?xsl=template/onetextabstract.xsl&conferenceID=2808&abstractID=562145 (Karl Schultz, The Higher Ground Foundation)	The reference to the crediting mechanism suggested by Schultz has been included.
260	53216	17	30	6	30	8	Please provide a few examples. (Kristie L. Ebi, IPCC WGII TSU)	Page limitations prevented us from discussing examples.
261	47056	17	30	11	0	0	Section 17.5.5. Improved Resource Pricing. I think it is limiting to only attend water resources in this section. Pricing issues are very remarkable also for other resources (energy, ecosystems). (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	We agree with the comment that pricing is also applicable to other resources. In the interest of page limitations, we remained focussed on water to provide an illustration.
262	43208	17	30	48	0	0	P30, line 48: replace 'generating' with 'generate' (Judith McNeill, University of New England)	This part has been lost in the shortening of the chapter.
263	53217	17	31	15	31	15	It is 2012, not 2011. (Kristie L. Ebi, IPCC WGII TSU)	Checked the Sterner reference, and confirmed that it is 2011 (see reference list)
264	54234	17	31	44	31	44	Please add citation to the World Bank report here, rather than only in the footnote. (Michael Mastrandrea, IPCC WGII TSU)	This section has been dropped.
265	50949	17	32	1	0	0	Section 17.5.8. As appropriate, the author team should specify citations supporting the statements made in this section. (Katharine Mach, IPCC WGII TSU)	This section has been dropped.
266	50950	17	32	38	32	39	For the described overreaction, it would be helpful to indicate more specifically the relevant time frame (presumably in the aftermath of the event, rather than during it). (Katharine Mach, IPCC WGII TSU)	The cited literature does not provide timeframes. The focus though is on the inapropriateness of the reaction in general, including timing of reaction.
267	50951	17	32	51	32	51	"likely" -- If this term is being used per the uncertainties guidance for authors (reflecting a probabilistic basis for its assignment), it should be italicized. The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This sub-section has been dropped in the revised draft.
268	40952	17	33	1	33	2	It is unclear how "risk-based" insurance differs from normal insurance from this description as insurance generally has premiums based on the level of risk. (Frances Moore, Stanford University)	This sub-section has been dropped in the revised draft.
269	45562	17	33	19	0	0	Christensen et al. 2011 is not listed in the references. (Thilak Mallawaarachchi, The University of Queensland)	We will list this in the next revision.
270	54235	17	34	12	34	12	Please spell out PIPRA. (Michael Mastrandrea, IPCC WGII TSU)	Reference to the acronym has been droped in the shortened revision.
271	54236	17	34	32	34	34	Please clarify who has raised such criticisms in the literature. In addition, this discussion should be coordinated with the critiques raised in 17.5.6. (Michael Mastrandrea, IPCC WGII TSU)	A reference has been added to the statement.
272	42265	17	34	46	0	46	Lowering or removing VAT from an "innovative " product means that the product has to be well defined, and for how long will it be "innovative"? VAT exemption is very poor way of targeting assistance to new product development. Faster depreciation allowances of R&D subsidies are better, although they still require benefit-cost analysis. (Adolf Stroombergen, Infometrics)	This example has been removed in the revisions
273	48165	17	35	1	43	30	This very important section falls short of the expectations raised by its title and respective results reported in the executive summary. It would be highly desirable to have a clearer discussion on quantitative approaches and results for the entire section and each sector on how robust cost estimates can be and what would need to be done to make them policy relevant. (Jochen Harnisch, KfW)	We have altered this section to add some statements on the qualities of an exemplary study, and condensed the sector level results in the interest of space. At the same time, we have added some insights about qualities that make results more policy-relevant.
274	41454	17	35	8	0	0	it is not true that the estimates for developing country costs range from 28 to 67 billion USD. That is the figure contained in the UNFCCC paper on investment and financial flows. The World Bank 2010 study comes up with higher figures. Also the study published by Parry et al. suggests higher costs, which is set a bit further below. So why is a range stated which obviously does not reflect the quoted studies? (Sven Harmeling, Germanwatch)	We have modified this discussion to more clearly elaborate the estimates from global studies that we find meet standards for good quality studies; that perspective alters our assessment of the range of existing high quality estimates, which was not elaborated in the FOD.
275	50952	17	35	13	35	13	"low confidence" -- As calibrated uncertainty language, these words should be italicized. (Katharine Mach, IPCC WGII TSU)	The term "low" has been italicized.
276	35247	17	36	1	36	19	There is no mention in this paragraph (nor in the rest of the chapter) about the fact that risk perception os also often triggered or increased by the occurrence of a damage. Is has been well aknowleged concerning flood risk but has also been observed in other domains. (Papon, 2008, ftp://mse.univ-paris1.fr/pub/mse/cahiers2004/V04083.pdf), some call that effect a saliency bias or a recency bias, it plays a great role in the recent insurance literature, particularly when looking at (potentially experimental) behaviours in empirics that try to go beyond the EUT. (antoine leblois, Cired)	This bias is potentially important in modeling adaptation responses to climate stressors - but we do not discuss risk in this particular sub-section..
277	43209	17	36	8	0	0	P36, line 8: replace 'country' with 'countries' (Judith McNeill, University of New England)	"Country" still remains correct as the statement referes to country "studies" and not to countroes.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
278	50953	17	36	13	0	0	Section 17.6.3. Throughout subsections of 17.6.3, the author team may wish to consider and, as relevant, cross-reference other WG2 chapters. (Katharine Mach, IPCC WGII TSU)	Yes, needs to be done again
279	47057	17	36	17	36	18	This two cathegories have been widely mixed in combined methodologies where the simulated productivities are then used as input data to estimate statistical functions of productivity response. (See Iglesias et al., 2011; Ciscar et al., 2011; Lobell and Burke, 2010 among others). References: (1) Iglesias A, Garrote L, Quiroga S and Moneo M. (2012) A regional comparison of the effects of climate change on agricultural crops in Europe. Climatic Change,112 (1), 29-46. (2) Ciscar, J.C., Iglesias, A., Feyen, L. Szabo, L., van Regemorter, D., Amelung, B., Nicholls, R., Watkiss, P., Christensen, O.B., Dankers, R., Garrote, L., Goodess, C.M., Hunt, A., Moreno, A., Richards, J., Soria, A. (2011). Physical and economic consequences of climate change in Europe. Proceedings of the National Academy of Sciences 108 (7): 2678-2683 (3) Lobell D B and Burke M B (2010). On the use of statistical models to predict crop yield responses to climate change. Agricultural and Forest Meteorology, 150, 1443-52. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	Good citations - but the examples are more in the vein of EU-based efforts, won't add much on developing country estimates.
280	47058	17	36	18	36	24	In my opinion, the econometric models categorization into Ricardian or correlational approaches is very simplistic. Impact assessment-econometric based models mentioned in Chapter 17, page 60, Table 17-1 does not necessary correspond to none of these categories. Also I would mention the microeconomic models that are being increasingly used in behavioural economic approaches. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	Table 17.1 has been removed from the chapter. The comment on behaviorial is addressed under comment 276
281	40953	17	36	21	36	21	Remove reference to Deschenes and Greenstone (2007) as a response by Fisher et al. (in press) has shown they used faulty climate data and that the results they present, particularly concerning the instability of cross-sectional projetions, change substantially once the correct data is used. (Fisher, A. C., Hanemann, W. M., Roberts, M. J., & Schlenker, W. (in press). The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather: Comment. American Economic Review.) (Frances Moore, Stanford University)	The changes have not been made pending the publication by Fisher et al. The point still remains valid on the basis of other citations povided.
282	40954	17	36	32	36	40	Another important disadvantage of the econometric approaches are that they generally can not provide estimates of adaptation costs. (Frances Moore, Stanford University)	We have reworked our language to make this more clear.
283	47059	17	36	37	36	40	I agree that sometimes the econometric analysis is limited beyond the scope of current observations. However, it is very useful for transfer knowledge. There are existing regions or seasons having the climate that other regions or seasons will experience in the future due to climate change. For example, for drought extreme events, the values in the current Mediterranean region could be very useful to understand the potential losses in other regions (Continental or Atlantic regions). (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	I think this advantage is already cited.
284	50954	17	37	11	0	0	Section 17.6.3.1. In this section, it may be beneficial to indicate more specifically the cost/benefit estimates that have been made, in addition to their overall nature. Additionally, the author team may wish to consider and cross-reference chapter 10. (Katharine Mach, IPCC WGII TSU)	This section has been revised, and the new structure does not go into the details that the comment refers to.
285	36958	17	37	11	37	39	Adaptation in transport can also take place by means of transport modes acting as each others substitutes. An example can be found in Jonkeren et al. (2011). Here adaptation takes place through modal shift (from inland waterway transport to road and railways). To prevent overlap: note that this reference is also mentioned in Chapter 23, page 13, line 50. Jonkeren, B. Jourquin and P. Rietveld (2011): Modal-split effects of climate change: The effect of low water levels on the competitive position of inland waterway transport in the river Rhine area. Transportation research part A: Policy & Practice, 45(10), 1007-1019. (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	This section has been revised, and the new structure does not go into the details that the comment refers to.
286	36959	17	37	11	37	39	Related to the comment above the authors might consider distinguising between two types of adaptation in transport. (1) Direct measures to counter the increases in generalized costs due to climate change (snow removal on roads for example). (2) Changes in responses as a result of changes in generalized costs in transport (the model shift in freight transport mentioned in the above comment). (Olaf Jonkeren, European Commission - Joint Research Centre - Institute for the Protection and Security of the Citizen (IPSC))	This section has been revised, and the new structure does not go into the details that the comment refers to.
287	48427	17	37	11	37	39	Recently the EU FP7 studies WEATHER and EWENT produced some new insights. Nurmi,V. et al (2012) Economic value of weather forecasts on transportation - Impacts of weather forecast quality developments to the economic effects of severe weather, EWENT report D5.2 - includes both a discussion of different economic responses as well as well as cost estimates of disturbances (and the reduction effect of weather services). It makes sense to distinguish between effects on users of infrastructure and the infrastructure itself. For the latter asset management approaches are recommended (Meyer, M.D., Amekudzi, A., O'Har, J.P. (2009), Transportation Asset Management Systems and Climate Change: An Adaptive Systems Management Approach, paper for Transportation Research Board 2010 Annual Meeting, CD-ROM proceedings) in combination with intelligent road management (see e.g. www.SIRWEC2012.fi). In these EU studies and also in various SIRWEC 2012 prsentations are several indications for complicated effects of co-evolution, implying that some things may turn out much less bad than expected. See e.g. Sukuvaara and Nurmi (2012) - Connected vehicle safety network and road weather forecasting – The WiSafeCar project, SIRWEC 2012 paper no. 001. and Chapman and Dobrot (2012) - The Use of Connected Vehicle Observations in Weather Applications for Various Highly Impacted Users of the Roads, SIRWEC 2012 paper no.071 (Adriaan Perrels, Finnish Meteorological Institute FMI)	This section has been revised, and the new structure does not go into the details that the comment refers to.
288	37981	17	37	35	37	39	It could also be mentioned that in Europe it has been estimated that modal shift as an adaptation option for inland waterways transport could reach 2-10% of the annual cargo volume , although this may create infrastructure capacity problems for rail and road transport (Jonkeren et al., 2011). (Elena Georgopoulou, National Observatory of Athens)	This section has been revised, and the new structure does not go into the details that the comment refers to.
289	37980	17	37	36	37	36	Attavanich et al. submitted: Has this been accepted? (Elena Georgopoulou, National Observatory of Athens)	This section has been revised, and the new structure does not go into the details that the comment refers to.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
290	43917	17	37	36	37	36	inclomplete reference : Attavanich et al., (Calvin Atewamba, UNECA)	This section has been revised, and the new structure does not go into the details that the comment refers to.
291	50955	17	37	42	0	0	Section 17.6.3.2. In this section, the author team may wish to indicate more precisely the cost/benefit estimates that have been made (in terms of monetary value), in addition to their overall nature. Also, it may be appropriate to consider and cross reference Chapter 7. (Katharine Mach, IPCC WGII TSU)	The approach used to illustrate how economics is used to evaluate adaptation has changed in the revised section, and the studies are now captured in table 17.4.
292	37017	17	37	42	38	34	"Choices producers make" to adapt to CC is part of the "implemented adaptation practices". Please elaborate further why you differentiate between these two. (Joachim Rock, Johann Heinrich von Thuenen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries)	The approach used to illustrate how economics is used to evaluate adaptation has changed in the revised section, and the studies are now captured in table 17.4.
293	40955	17	37	48	38	8	To the extent the studies listed in this section are cross-sectional, Ricardian type studies, it is misleading to suggest that they "observe" adaptation. Rather adaptation in these studies are assumed in order to rationalize observed variations in farm management with climate variables. Determining whether or not these variations are actually adaptive requires a more detailed, process-based model of farm profits. (Frances Moore, Stanford University)	The approach used to illustrate how economics is used to evaluate adaptation has changed in the revised section, and the studies are now captured in table 17.4.
294	47060	17	37	50	37	50	Also optimization methods are used for this purpose. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	This section has been revised, and the new structure does not go into the details that the comment refers to.
295	50956	17	37	51	38	23	For these examples, the author team should specify as appropriate the relevant climate/socio-economic scenarios and time frames. (Katharine Mach, IPCC WGII TSU)	This section has been revised, and the new structure does not go into the details that the comment refers to.
296	47061	17	38	6	38	6	I think it could be interesting to include some examples of adaptation problems for irrigation in the Mediterranean region. (See González-Zeas et al., 2012; Quiroga et al., 2011). References: (1) González-Zeas D, Garrote L, Iglesias A, and Sordo-Ward A. (2012) Improving runoff estimates from regional climate models: a performance analysis in Spain. Hydrology and Earth System Sciences, 16, 1709-1723. (2) Quiroga, S, Fernández-Haddad, Z, Iglesias, A. (2011a). Crop yields response to water pressures in the Ebro basin in Spain: risk and water policy implications. Hydrology and Earth System Sciences, 15(2): 505-518. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	This section has been revised, and the new structure does not go into the details that the comment refers to.
297	47062	17	38	23	38	23	Other potential adaptation improvements that have been evaluated are the economic value of improved meteorological forecasts to know if increasing support to weather forecast systems is necessary or not. (See Katz and Ehrendorfer, 2006, Cerdá and Quiroga, 2011). References: (1) Katz, R.W., Ehrendorfer, M. (2006). "Bayesian Approach to Decision Making Using Ensemble Weather Forecasts". Weather and Forecasting, 21, 220-231 (2) Cerdá, E. Quiroga, S. (2010). Economic value of weather forecasting: the role of risk aversion. TOP: An Official Journal of the Spanish Society of Statistics and Operations Research, 19(1), 130-149. (SONIA QUIROGA, UNIVERSIDAD DE ALCALA)	This section has been revised, and the new structure does not go into the details that the comment refers to.
298	50957	17	38	37	0	0	Section 17.6.3.3. For this section, the author team may wish to consider and cross-reference chapter 10. Additionally, in ensuring a comprehensive treatment, the author team should consider if there are relevant examples outside Brazil. (Katharine Mach, IPCC WGII TSU)	We agree with the suggestion, but this section has been revised, and the new structure does not go into the details that the comment refers to.
299	50958	17	38	43	38	44	For the described reduction in energy, it would be helpful to also specify the relevant baseline (in terms of timeframe and potentially amount of energy). (Katharine Mach, IPCC WGII TSU)	This section has been revised, and the new structure does not go into the details that the comment refers to.
300	50959	17	38	50	38	50	It is not clear to me how the percentages line up with the capacities, given that the larger capacity seems to correspond to the smaller percentage. (Katharine Mach, IPCC WGII TSU)	This section has been revised, and the new structure does not go into the details that the comment refers to.
301	50960	17	39	2	0	0	Section 17.6.3.4. As possible in this section, it would be preferable to indicate more precisely the cost/benefit estimates that have been made. Additionally, the author team may wish to consider and cross-reference chapter 5. (Katharine Mach, IPCC WGII TSU)	Our revised table includes these data for featured studies.
302	45106	17	39	4	0	19	Note there is some novel work on hedonic pricing of land values in Australia, and the potential impacts of fugure flooding on these - important as land can be an appreciating asset unlike the depreciating assets usually considered - this work is on economic impacts on land prices in SE Queensland (Cameron Fletcher, Ryan McAllister et al, CSIRO/DCCEE - the hedonic pricing papers are already out [Rambaldi, A. N., McAllister, R. R. J., Collins, K., and Fletcher, C. S. ?2012. Separating land from structure prices: hedonic imputed prices for Brisbane Australia. Economics Letters in press], impacts ones shortly - there is a project report available). There is also other CSIRO work emerging - C-H Wang et al on economics of coastal inundation and adaptation responses in SE Queensland, forthcoming; a major national analysis of the impacts of 4 hazards at local statistical area resolution nationally, exploring different future population distributions (Schandl et al, forthcoming in 1-2 months). Beyond this, note the very sophisticated private sector investment adaptation planning for the Brisbane new runway by Colonial First State (Mark Rogers). (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	We have looked at these studies - and have added some of the citations as appropriate, but our view is that this study is a variant of the broader econometric approach and therefore the category is addressed. Furthermore, the section of the chapter has changed.
303	50961	17	39	45	39	45	The missing citation should be provided. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as water, natural disaster risk.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
304	50962	17	40	5	0	0	Section 17.6.3.5. For this section, the author team may wish to consider and cross-reference Chapter 11. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as water, natural disaster risk.
305	50963	17	40	24	0	0	Section 17.6.3.6. For this section, the author team may wish to consider and cross-reference chapter 8. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as water, natural disaster risk.
306	45107	17	40	26	0	0	See Australian study of adaptation to impacts of high winds in Queensland, looking at a variety of possible future scenarios and showing a general positive NPV, dropping off rapidly as action is delayed, and robust to future uncertainty about maximum wind speed changes - Stewart & Wang 2011 (Stewart, M. G. and Wang, X. (2011). Risk Assessment of Climate Adaptation Strategies for Extreme Wind Events in Queensland. CSIRO, Melbourne, Australia. (Available at: http://www.csiro.au/resources/Adapt-Extreme-Wind-Events-Queensland.html)) (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as water, natural disaster risk.
307	50964	17	40	40	40	40	"likely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	This has changed as a result of changes in the structure of the section.
308	50965	17	41	13	41	15	For this statement, it would be preferable to indicate the relevant climate/socio-economic scenario as appropriate. (Katharine Mach, IPCC WGII TSU)	Our revised table includes these data for featured studies.
309	39069	17	41	37	0	0	Planning by the Melbourne water utilities for future uncertainty found that by adopting a proactive strategy that firstly considers incremetal capital options such as small scale decentralised non-potable solutions before introducing large scale potable supply options, the water supply system was bette able to cope with more extreme circumstances and absorbed future shocks. Under future water constrained environment, this adaptive strategy was cheaper than the usual deterministic approaches. However, under milder scenarios, this insurance type approach comes at an increased cost (see Mukheibir, P., Mitchell, C.A., McKibbin, J.L., Komatsu, R., Ryan, H. & Fitzgerald, C. 2012, 'Adaptive planning for resilient urban water systems under an uncertain future', OzWater'12 'Sharing Knowledge, Planning the Future', Sydney, Australia, May 2012 in Proceedings of OzWater'12 'Sharing Knowledge, Planning the Future', ed Australian Water Association (AWA), Australian Water Association (AWA), Sydney, Australia). (Pierre Mukheibir, University of Technology Sydney)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as water, natural disaster risk.
310	39070	17	41	37	0	0	The consequence of climate change impacts on water resources is also an economic issue when it comes to meeting projected water demand and ensuring access to basic water supplies in small towns and communities. In order to meet the same water demand under climate change conditions as compared with normal climate conditions the investment cost in a South African case study quadruples over the 30 year period. This in turn results in an increase in the average annual unit selling price of the water increasing by 25%. A fundamental shift in development policy is therefore required if equitable access to affordable water is to be achieved. (See Mukheibir, P. 2010, 'The potential economic impact of climate change on equitable water access in small towns: A South African case study', International Journal of Water, vol. 5, no. 3, pp. 223-245.) (Pierre Mukheibir, University of Technology Sydney)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
311	50966	17	41	37	0	0	Section 17.6.3.7. For this section, the author team may wish to consider and cross-reference chapter 3. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
312	54237	17	41	51	41	52	Please specify which climate scenarios were used. (Michael Mastrandrea, IPCC WGII TSU)	Our revised table includes these data for featured studies.
313	50967	17	42	5	42	7	It would be helpful to specify if these values are for 2050 or if they run through to 2050. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
314	54238	17	42	5	42	7	It is not clear that this is the most relevant comparison. Rather, adaptation costs are 12 billion on top of the baseline costs, indicating the additional impact of climate change. (Michael Mastrandrea, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
315	50968	17	42	10	0	0	Section 17.6.3.8. For this section, the author team may wish to consider and cross-reference chapter 4. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
316	52440	17	42	12	42	25	suggesting change "Ecosystems and Ecosystem-Based Adaptation,as ecosystems and biodiversity (Jian Guo WU, Chinese Academy of Environmental Sciences)	Our results presentation has been restructured so the header no longer exists
317	54239	17	42	16	42	18	Please specify which climate scenario this refers to. (Michael Mastrandrea, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
318	50969	17	42	28	0	0	Section 17.6.3.9. For this section, the author team may wish to consider and cross-reference chapter 10. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
319	50970	17	42	33	42	34	The missing reference indicated here should be supplied by the 2nd order draft. (Katharine Mach, IPCC WGII TSU)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
320	43210	17	43	1	0	0	P43, line 1: insert space after 4th comma (Judith McNeill, University of New England)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
321	38602	17	43	9	0	0	In the section 17.6.3.10 on Natural Disaster Risk, the World Bank Samoa case study should be referred. Please note World Bank (2010): Economics of Adaptation to Climate Change at http://climatechange.worldbank.org/sites/default/files/documents/EACC_Samoa.pdf (Susmita Dasgupta, The World Bank)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
322	38614	17	43	9	43	27	In the section 17.6.3.10 on Natural Disaster Risk, please note the estimates of potential damage and adaptation cost for cyclonic storm surges and adaptation cost for inland flood in a changing climate for Bangladesh, one of the world's most natural disaster prone country, in World Bank (2012): The Cost of adapting to Extreme Weather Events in a Changing Climate at http://siteresources.worldbank.org/INTBANGLADESH/Resources/BDS28ClimateChange.pdf If 2012 is beyond the cutoff date of the background literature of IPCC WGII AR5, please consider an earlier analysis presented in the World Bank (2010): Economics of Adaptation to Climate Change- Bangladesh at http://climatechange.worldbank.org/sites/default/files/documents/EACC_Bangladesh.pdf (Susmita Dasgupta, The World Bank)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
323	45891	17	43	11	43	11	Please refer to this published paper, rather than the thesis: Bouwer, L.M., Bubeck, P. & Aerts, J.C.J.H. (2010). Changes in future flood risk due to cli-mate and development in a Dutch polder area. Global Environmental Change, 20(3), 463-471. (Laurens Bouwer, Vrije Universiteit Amsterdam)	This will be addressed in the next chapter revision.
324	43199	17	43	14	43	15	it is not exactly clear to what the percentages (of between 96 and 719% by 2040) refer? Losses valued in monetary terms? (Judith McNeill, University of New England)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
325	50971	17	43	14	43	15	For this statement, the author team should specify the relevant climate/socio-economic scenario as relevant. Additionally, it would be helpful to provide further information on the drivers leading to the wide range of outcomes. (Katharine Mach, IPCC WGII TSU)	Our revised table includes these data for featured studies.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
326	45892	17	43	15	43	16	Please note that this study also included avoided costs for adaptation measures; it either completely offsets the effects of anthropogenic climate change, or reduces increased risks by some 70%. (Laurens Bouwer, Vrije Universiteit Amsterdam)	This comment has been noted.
327	45893	17	43	16	43	27	There are many other studies on disaster risk costs from climate change, see especially SREX Chapter 4/Handmer et al. 2012; and this overview paper:) Bouwer, L.M. (in press). Projections of future extreme weather losses under changes in climate and exposure. Risk Analysis, doi:10.1111/j.1539-6924.2012.01880.x (Laurens Bouwer, Vrije Universiteit Amsterdam)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
328	45894	17	43	25	43	27	These two studies provide ex ante estimates of avoided costs of different adaptation measures in The Netherlands and New York City: Botzen, W.J.W., Aerts, J.C.J.H., van den Bergh, J.C.J.M., 2009. Willingness of homeowners to mitigate climate risk through insurance. Ecological Economics 68, 2265–2277; Aerts, J.C.J.H. & Botzen, W.J.W. (2011). Climate-resilient waterfront development in New York City: bridging flood insurance, building codes, and flood zoning. Annals of the New York Academy of Sciences, 1227, 1-82. (Laurens Bouwer, Vrije Universiteit Amsterdam)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
329	45108	17	43	27	0	0	See Queensland extreme wind building standsards adaptation analysis - Stewart, M. G. and Wang, X. (2011). Risk Assessment of Climate Adaptation Strategies for Extreme Wind Events in Queensland. CSIRO, Melbourne, Australia. (Available at: http://www.csiro.au/resources/Adapt-Extreme-Wind-Events-Queensland.html) (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	These suggestions are relevant. This sections has however been significantly restructured, and the suggested changes and citations have been integrated to the best possible extent to fit the revised structure and content. For example, we no longer have stand-alone sub-sections on sectors such as natural disaster risk.
330	54895	17	43	30	0	0	Figure 17.3 It will be preferable if the figure is further explained. (Monalisa Chatterjee, IPCC WGII TSU)	This figure has been dropped from the chapter
331	50972	17	43	33	0	0	Section 17.7. In this section, the author team should evaluate its degree of certainty in key findings presented, presenting calibrated uncertainty language for conclusions accordingly. Additionally for these conclusions, the author team should provide citations to the supporting chapter sections, in which the reader can find the author team's evaluation of the state of understanding (the traceable account). (Katharine Mach, IPCC WGII TSU)	This section has been removed from the chapter due to page length constraints, and we think the executive summary already serves its purpose.
332	54240	17	43	36	43	36	Please specify where softer options have been discussed in the chapter. (Michael Mastrandrea, IPCC WGII TSU)	This section has been removed from the chapter due to page length constraints, and we think the executive summary already serves its purpose.
333	54241	17	43	39	43	40	Is this a conclusion generated by the assessment of the other team? If so, please consider reframing as an assessment finding. (Michael Mastrandrea, IPCC WGII TSU)	This section has been removed from the chapter due to page length constraints, and we think the executive summary already serves its purpose.
334	43198	17	43	53	44	1	I am not sure how, realistically, a government would offer an alternative livelihood' in 'the light of the increased costs of climate variability'. I do think it extremely important to heed equity and employment impacts where climate change poses structural adjustment issues. Generous structural adjustment measures should be used where possible – income support and retraining opportunities. (Judith McNeill, University of New England)	This section has been removed from the chapter due to page length constraints, and we think the executive summary already serves its purpose.
335	39514	17	44	3	44	10	These points seem to come out of nowhere. (Sven Schulze, Hamburgisches WeltWirtschaftsInstitut (HWWI))	This section has been removed from the chapter
336	43211	17	44	22	0	0	P44, line 22: replace 'method' with 'methods' (Judith McNeill, University of New England)	The correction has been made.
337	50973	17	44	40	44	40	"likely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	The problem of using "likely" is noted.
338	42266	17	44	51	0	51	Specifying "equal" weight is too prescriptive. Weights may need to be unequal, favouring economic or non-economic factors as appropriate. I suggest changing the phrase to "carefully considered weights" (Adolf Stroombergen, Infometrics)	This has been addressed in the revised FAQs.
339	54242	17	44	51	44	51	Is equal weighting the only appropriate choice? This could be rephrased to broaden the point. (Michael Mastrandrea, IPCC WGII TSU)	This has been addressed in the revised FAQs.
340	43212	17	45	1	0	0	P45, line 1: replace 'winder' with 'wider' (Judith McNeill, University of New England)	The FAQs have been revised to cover this
341	41575	17	45	12	0	0	costing adaptation in ecosystems: see Pam Berry's work described by her in Parry, et al 2102 (Martin Parry, Imperial College)	The context of this comment is not very clear as the section mentioned in the comment does not deal with ecosystems.
342	40956	17	45	23	45	24	"premiums often depend on the assessed risk for individuals." This statement seems to contradict the insurance discussion in the text in which there is substantial discussion of the risk of moral hazard since premiums are not priced based on individual risk and can therefore provide perverse incentives to not minimize risk. (Frances Moore, Stanford University)	The FAQs have been revised.
343	43213	17	45	32	0	0	P45, line32: replace 'their' with 'there are' (Judith McNeill, University of New England)	The FAQs have been revised to cover this
344	43214	17	45	39	0	0	P45, line 39: 'not necessarily' instead of 'not necessary' (Judith McNeill, University of New England)	The FAQs have been revised to cover this
345	35467	17	48	28	48	28	To include two of the above references: Coase, R.H., 1937: The Nature of the Firm. Economica, 4, 386-405; and Coase, R.H., 1960: The Problem of Social Cost. Journal of Law and Economics, 3 (1), 1-44. (M. Dolores Garza-Gil, University of Vigo)	These references have been included.
346	35468	17	59	6	59	6	To include the last reference: Williamson, O.E., 1979: Transaction-Cost Economics: The Governance of Contractual Relations. Journal of Law and Economics, 22 (2), 233-262. (M. Dolores Garza-Gil, University of Vigo)	This reference has been included.
347	54243	17	60	0	0	0	Table 17-1: In the last row on page 60, the entry for risk assessment is not clear. Is this a variant of the "impact assessment-extreme weather events" category? Please clarify the relationship and placement in the same row. (Michael Mastrandrea, IPCC WGII TSU)	This table has been removed.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
348	50974	17	61	0	0	0	Table 17-1. For this table, the author team should ensure that all updates and expansion as compared to the original version are supported with citations to the relevant literature. (Katharine Mach, IPCC WGII TSU)	Presentation of this section and associated tables has changed. Citations are included to refer to illustrative studies in the new table 17.4
349	53218	17	61	0	0	0	For Table 17.2, there are quite a few papers on health co-benefits that appeared in the Lancet about 18 months ago. (Kristie L. Ebi, IPCC WGII TSU)	This table has been dropped.
350	53961	17	61	0	0	0	Table 17-2: Since the main purpose of this table is to show examples of ancillary benefits, it seems to flow better if the “nature of ancillary benefits” column is to be to the right and the citation (or call is “reference” to be consistent with other chapters) column is moved to the left of the table. (Yuka Estrada, IPCC WGII TSU)	This table has been dropped.
351	40940	17	61	0	17	61	Table 17-1 – Impact-assessment, econometrics-based. Limitations should include that these approaches generally cannot provide estimates of adaptation costs because they are equilibrium analyses that don’t model transition costs. An exception is Kelly, Kolstad and Mitchell (2005) in which an econometric model is used to parameterize a Bayesian-learning model and so estimate adjustment costs associated with lagged perception of climate change in the agricultural sector of the US Midwest. (Kelly, D., Kolstad, C., & Mitchell, G. (2005). Adjustment costs from environmental change. Journal of Environmental Economics and Management, 50(3), 468-495. doi:10.1016/j.jeem.2005.02.00) (Frances Moore, Stanford University)	This table has been replaced by one that illustrates how economic evaluation methods have been used in different studies covering different sectors (see table 17.4).
352	50975	17	62	0	0	0	Table 17-3. In column 3, it would be clearer to indicate explicitly what is meant by "present" given that the citations were published several years ago. (Katharine Mach, IPCC WGII TSU)	This refers to the time of the publication.
353	50976	17	62	0	0	0	Table 17-4. The author team might consider providing examples of citations making these estimates, potentially as a final column in the table. (Katharine Mach, IPCC WGII TSU)	Our new table incorporates this type of information
354	53962	17	62	0	0	0	Table 17-4: It would be easier for the reader if a set of descriptors (e.g, high, low medium) were used instead of check marks. (Yuka Estrada, IPCC WGII TSU)	The check marks are from the original study so we are reluctant to modify them
355	50977	17	63	0	0	0	Table 17-5. It would be helpful to specify in the table caption the relevant geographic area (New York City). Additionally, the logic of the last sentence of the caption could be clarified. (Katharine Mach, IPCC WGII TSU)	This table has been dropped.
356	50978	17	63	0	0	0	Table 17-6. For this table, it would be helpful to specify the relevant climate/socio-economic scenario analyzed for the 2080s. Additionally, the author team should indicate the relevant geographic area (Mumbai) in the table caption. (Katharine Mach, IPCC WGII TSU)	This table has been dropped.
357	53963	17	63	0	0	0	Table 17-6: RP should be spelled out (Yuka Estrada, IPCC WGII TSU)	This table has been dropped.
358	54244	17	64	0	0	0	Figure 17-1: This is a very useful conceptual figure. Is "adaptation space" really a factor causing narrowing, or is it more of a title for the whole figure (or the unconstrained space)? If the latter, it could be in a different color to avoid confusion. (Michael Mastrandrea, IPCC WGII TSU)	This will be changed in the next draft to reflect that "adaptation space" is more for the whole figure rather than just the outer band.
359	53965	17	65	0	0	0	Figure 17-3: An explanatory caption including a description of each acronym must be provided. Could this be reproduced using layman's terms for non-technical readers? (Yuka Estrada, IPCC WGII TSU)	This figure has been dropped from the SOD