



**IPCC WGII
Fourth Assessment Report
Climate Change Impacts, Adaptation and Vulnerability**

Expert Review of First Order Draft

Specific Comments

Chapter 17

December 5, 2005



Discussion of expert review comments and record keeping

IT IS RECOMMENDED THAT:

- AUTHORS BEGIN WORK ON THE COMMENTS IMMEDIATELY. SUBSTANTIVE COMMENTS NEED TO BE SEPARATED FROM NON-SUBSTANTIVE, AND THE TWO SHOULD BE TREATED DIFFERENTLY
- CONTACT IS MADE BETWEEN AUTHORS AND THEIR REVIEW EDITORS IN DECEMBER

Substantive comments

- The chapter writing team should discuss all substantive expert review comments, by email and/or at Merida.
- Substantive comments require full and proper consideration. The *Principles Governing IPCC Work* state that:
 - genuine controversies should be reflected adequately in the text of the Report and
 - it is the role of the Review Editors to advise the lead authors on how to handle contentious/controversial issues
- You must record the outcome of these discussions in this document, under the column 'Notes of the Writing Team'.

Non-substantive comments

- For non-substantive comments, a very brief entry should be made in the column 'Notes of the Writing Team'. The following terms are acceptable:
 - Addressed
 - Not applicable
 - Text removed
 - A tick to denote a comment has been addressed (somewhere on the document this should be stated)

General

- The record can be kept electronically, or with pen-and-paper.
- The document becomes part of the traceable account of the Working Group II Fourth Assessment. When completed to the satisfaction of the Review Editors, a copy should be returned to the TSU by the 28th February 2006.

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
17-0	A	0				<p>Co-chair and TSU comments</p> <p>General comments</p> <p>**Length: Text is 40 pp word (makes 25 pp print); refs are 9 pp word, = 4.5 pp print. Therefore text length is currently at max.</p> <p>Suggest subsection be added on COSTS of adaptation in S 17.2: this should give an indication of the extent of the literature of actual costs (at local regional and global [if there have been no satisfactory global assessments, then say so]). Box 17.2 2 could then be part of this section</p> <p>Table 17.4 (effect of AD on impacts): these data are all pre 2001 TAR: Suggest use more recent data, and if possible for a spread of different sectors, not just agric.</p> <p>Conclusions and ES: Not clear how your concns take us forward from TAR: state what is new to TAR, how TAR is revised, and what TAR concns are re-affirmed.</p> <p>Suggest, again, you summarise TAR concns on AD in one-quarter page of bullet points</p> <p>See my comments in square brackets below. It is disappointing that you do not address head on the question posed by Plenary and by so many p/makers: Can we adapt? What would it cost to adapt? And, as you break down the question into more subsets: How much (and what rate) can be adapted to? If not by all, then by what sectors/ regions etc? How elastic are the barriers to adaptation (institutional, technological, etc)? How much does it cost to 'stretch' them? In the end you need</p>	<p>Addressed</p> <p>Addressed</p> <p>Addressed</p>

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						<p>to contribute to the wider question, put too crudely but it still needs to be answered: Would it be cheaper to adapt than to mitigate? Or in what mix A and M? And would this need to vary over time? I see Chapter 17 as addressing adaptation costs and damages avoided, whilst Chapter 18 examines damages avoided by mitigation and makes the comparison between the two. Chapters 17 and 18 need to liaise on this.</p> <p>Not much of these Qs can probably be answered at present. But you need to a) answer what you can b) specify what you cannot answer at the present, and c) identify the areas needing more research in order to answer.</p> <p>Ignoring the question, because you think it naïve or whatever, will not make it go away. If we do not try to answer it, then p/makers will go to someone else (probably less able than you, but willing to try).</p> <p>The main addition needed is an assessment of the literature on costs of adaptation. It is essential the readers be clear how much is known about this/ and how little.</p> <p>Below are copies of comments ON THE ZERO-ORDER DRAFT by Martin Parry in Jan 2003, [with comments by MP in square brackets regarding whether FOD has responded to these comments]:</p> <p>General comments:</p> <p>1) Length: Zod max pages is xx (equivalent to 25 printed pages). So current length</p>	<p>Attempted – see SOD</p>

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						<p>is near max, and you need to condense elsewhere in order to make any additions.</p> <p>2. Suggest you summarise TAR conclusions on adaptation with bullet points on page 1. [not yet done]</p> <p>3) Missing seems to be consideration of: costs of adaptation; are there current limits (eg technologically). NB Plenary wishes costs and limits/barriers to be covered, and we suggest you have subsections on this. [limits/barriers now covered; costs covered theoretically by Box but literature on costs not yet assessed]</p> <p>4) Does current knowledge allow inference concerning: a) How much of the projected climate change is it /will it be possible to adapt to? B) at what cost and effort? Of course the answer is not simple, and may need to place and time specific, but how far does current knowledge address these Qs. [p-makers ask the question: can we adapt to c. change? You need to start to provide an answer, even if by saying: it is not that simple, depends on costs/ability/objectives, etc. There is literature for some places which indicates current ability to adapt to some levels (in fact these amount/rates, such as 1 deg C per 50 years, underpinned some thinking on targets). These were then based on guesswork. Now more info is available, and this chapter should contain this information].</p> <p>5) There is a depressing lack of numbers: eg on costs, damages avoided, measures of vuln/resilience, etc. Is there more information here? [more in this draft, but still v. little on costs]</p> <p>6) Can you summarise key **new** findings: It is not clear how these a) confirm TAR conclusions or b) substantially (or otherwise) revise them. Next step might be</p>	<p>Addressed</p> <p>Addressed</p> <p>Addressed</p> <p>Addressed</p>

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						<p>to sort clearly in the collective mind of the writing team what is the new knowledge on adaptation since 2001; then differentiate this into which is the most policy-relevant; then decide on this basis what space to accord development of these topics in the limited space text space available. [not yet clear what is new from TAR]</p> <p>7) The policy maker reading this chapter really needs much more specific information about what is currently possible regarding adaptation; and what might be possible in the future given investment in knowledge, etc; this reads too much like a treatise on adaptation methodology, and is more suitable for a textbook than a policy-relevant assessment of current knowledge. [now less text-booklike than earlier draft; but still could contain more info on what p-maker needs to know: i.e. what do we currently know about: how much climate change we can adapt to? What would be the cost? What sort of actions would we need to take? and when?]</p> <p>(Martin Parry)</p>	<p>Addressed</p> <p>Addressed</p>
17-1	A	0	0	51	16	<p>ROOM FOR IMPROVEMENT: However as is usually the case in exercises such as this one, there is considerable room for improvement not only to meet the standards already set, but, in addition, to meet new challenges emerging from the most recent research. In this expert review, I am directing the attention of the authors to two areas, namely the fact that the authors have overshot the length allocated to the chapter and the unwieldy nature of the narrative which will certainly pose problems for the average informed readership</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-2	A	0	0	51	16	<p>PROGRESS MADE SO FAR: As it stands, the FOD reads like the product of considerable and commendable efforts by acknowledged experts in the field. It is centred on a comprehensive review of the most recent and relevant literature, It contains all that needs be said about the subject matter to meet the standards already set in the previous IPCC reports. Further work on the FOD will most</p>	Addressed

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						certainly not include the filling of gaps. (James Adejuwon, Obafeme Awolowo University)	
17-3	A	0	0	51	16	NOT SUFFICIENTLY READER FRIENDLY: Perhaps the most serious defect of the FOD as it stands is its lack of focus. A manuscript in respect of which 230 items of literature was consulted requires a statement of its objective to guide the selection of what to include and what not to include from the voluminous, heterogeneous and complex body of literature consulted. The absence of an objective is responsible for its lack of a logical framework. The lack of a logical structure makes the exposition unwieldy and difficult to assimilate by the informed non-expert reader. Understandably the FOD consists of little bits contributed by the various lead authors. These are supposed to have been integrated by a single overseeing mind. This does not appear to have happened. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-4	A	0	0	51	16	LENGTH: The authors already know that they have to reduce the length of the present draft by as much as 50% if they are not to make request for more space in Climate Change 2007 than is at present allocated to their chapter. The FOD is 50 pages while the allocated space is 25 pages. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-5	A	0	0	51	16	HQW TO MAKE TEXT READER-FRIENDLY III: The authors should recognise their target readership and keep them in mind as they craft out the text paragraph by paragraph. My understanding of the IPCC process is that the necessary research has been conducted and is available in publications. Value is to be added in the current exercise by organising the findings already reported in literature in such a way as to facilitate their consumption and assimilation by those who need to read about them in Climate Change 2007. It should be borne in mind that this is the main chapter recommending specific action. The targets of such recommendations should be recognised in stating the primary objectives of the chapter. These could include the	Addressed

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						<p>individuals, livelihood groups, communities or nations that are threatened by climate change. They could also include governmental and non-governmental individuals, organizations or bodies that are charged with responsibilities for the wellbeing of the various sectors that dependent on climate and that may be adversely affected by changes in climate. Thus to identify and assess the adaptation needs of these sectors and stakeholders should be recognised as the primary objective of the chapter. These adaptation needs are tools, some of them structures, others policies, others legal instruments, others operational schedules, early warning systems etc. Philosophical forays into methodologies and into what is and what is not adaptation etc should be left to those conducting research and publishing their findings in learned journals. With another chapter designed to tackle issues related to vulnerability, acquisition of the vector of resources needed to shore up resilience should be excluded from the list of adaptation need.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	
17-6	A	0	0	51	16	<p>HOW TO REDUCE LENGTH II: Reducing areas of overlaps: I recognise the need for the authors of chapter 17 to meet with the authors of chapters 2, 18 and 19 to discuss the areas of overlap. The possibility of allowing Chapter two to handle the basic methodological concepts such as Cost Benefit Analysis, Cost Effectiveness Analysis and Multi-criteria Analysis should be explored. Chapter 17 could then settle for the applications of the methods as it is now done in Tables 17.4 and 17.5. Regarding adaptive capacity, I strongly believe that Chapter 17 should give some ground to Chapters 18 and 19. The authors should place emphasis on adaptation as tools for combating the climate stresses. Adaptive capacity as a vector of resources (AfDB et al, 2001) go far beyond the adaptation tools and should be treated in the context of vulnerability based on the $V = f$ (exposure, sensitivity, adaptive capacity) relationship.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	
17-7	A	0	0	51	16	<p>HOW TO REDUCE LENGTH I: Part of the reduction can be achieved by eliminating interminable definitions. At this stage in the IPCC Project, it should be</p>	Addressed

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						<p>assumed that everybody understands each of the key concepts including adaptation, vulnerability and impacts. The chapter is not adding value by introducing new definitions especially when it is not shown that the existing definitions are defective. Each of the earlier reports has its own list of glossaries and the current volume will definitely include a list of glossary. In addition new definitions for well known concepts should be discouraged. The older definitions should be allowed to become common knowledge understood by all. Coming out with another definition every time a climate change volume is published tends to erode the authority of IPCC as a source of authentic information. For this much of 17.1.1 does not add much value to existing IPCC knowledge. The authors can carefully go through the manuscript and eliminate all attempts to define or redefine the well known concepts and terminologies.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	
17-8	A	0	0	51	16	<p>HOW TO MAKE TEXT READER-FRIENDLY IV: To be reader-friendly, the text should be based on a logical structure. A logical structure should consist of components that are integrated into a whole by a series of related actions and reactions. An optimum logical structure is one that is most able to integrate all the available relevant information and within which action and reaction flow. The relationship between the components can be represented by a diagram with arrows showing the relationship between components. The authors seem to have followed closely the agreed Plenary Outline. I have to observe, if it is not too late, that this is placing an excessive constrain on their ability to execute the best possible assessment. As it stands, the chapter does not have a discernible logical structure mainly because it is not based on specified objectives. There are of course tens of such structures that could effectively and efficiently integrate the large body of data already gathered from published work. Whatever structure is adopted should include at least six components including: impacts and stresses of a changing climate - the sectors and livelihood groups affected - adaptation needs to combat the impacts {by sectors and livelihood groups} - typology of adaptation tools (by sectors and livelihood groups) - effectiveness of the tools (with local and regional</p>	Addressed

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						examples) – residual vulnerabilities. The first component is essentially the responsibility of the sector and the regional chapters. One page summary of these chapters could come after stating the objectives of the chapter. The sixth component essentially belongs to chapter 19. However there could be a concluding section in chapter 17 that links up with chapter 19. . (James Adejuwon, Obafeme Awolowo University)	
17-9	A	0	0	51	16	HOW TO MAKE TEXT READER-FRIENDLY I: There should be a paragraph stating the the specific objectives of the chapter in the context of the contributions of WG II. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-10	A	0	0	51	16	HOW TO MAKE TEXT READER-FRIENDLY II: The statement of specific objectives should be expanded into an introductory section that will include what the reader should expect in the various sections of the chapter. The section could also include the identification of the target readership as described in the following comment. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-11	A	0	0	51	16	GENERAL: The IPCC does not perform research. However the authors of their reports are expected to add some value to the products of research they gather from current literature. Essentially, the literature reviewed should be centred on works published since 1999. From such a heterogeneous body of literature, the authors are expected to draw conclusions with general applicability. Further, the authors are encouraged to 'map' the results from the literature they assess onto a common and consistent framework. They are directed to follow an agreed plenary outline. This notwithstanding, this expert reviewer is approaching his assignment with the understanding that he could 'flag up if he feels that following the outline is placing excessive constrain on the ability of the authors to do the best possible assessment'. This reviewer also understands that in carrying out the assignment he should make	Addressed

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						a critical evaluation of the FOD in very much the same way as if he might review a journal paper. (James Adejuwon, Obafeme Awolowo University)	
17-12	A	0	0			I think that this is a good start for a first draft. A lot of the material is place holding at this stage and often the writing errs towards writing text books rather than doing an assessment. The views of developing countries appear to be weakly represented and I suggest that some additional CAs or even LAs be thought to redress this. These people need to have current experience in developing country institutions. (Ian Noble, The World Bank)	Addressed
17-13	A	0				Congratulations to the CLAs, LAs and Contributors for putting together an excellent draft of the Chapter 17. It will certainly enrich the current knowledge base of all interested as well as practitioners of adaptation across the globe. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-14	A	0				Shorten theoretical/conceptual sections - 17.1.1., 17.3.1, 17.3.3 should all go in one initial section, leaving remaining sections to analyse adaptation practices. Needs better balance between developed countries examples and developing countries examples (which should predominate). Developed countries examples could be reduced to keep world-wide representativeness of adaptation practices and reduce the size of the chapter. Shorten boxes, e.g. Box 17.2 could stop at line 25 (as remaining example too theoretical). (Sofia Bettencourt, The World Bank)	Addressed
17-15	A	0				I include also the following references in case they should be useful: Hay, Mimura, Campbell, Fifita, Koshy, McLean, Nakalevu Nunn, and de Wet	Disasters mitigation Addressed

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						<p>2003. Climate Variability and Change and Sea-Level Rise in the Pacific Islands Region: a Resource Book for Policy and Decision Makers, Educators and Other Stakeholders. South Pacific Regional Environment Programme, Apia, Samoa (see document in PDF form): http://www.sprep.org.ws/climate/doc/documents/Prelims.pdf (Sofia Bettencourt, The World Bank)</p>	
17-16	A	0				<p>On the whole, this is much different than previous efforts and I like it a lot better. My major comments would be: 1) try to bring in the importance of structural factors in the economy as determinants of adaptation capacity; 2) Focus a bit more on qualitative differences between short-run adaptations and long-run adaptations with regard to risk; 3) Bring the no regrets concept into line with the ex-ante, ex-ante, ex-post planning literature; and 4) Stress the need for integrated development-CC planning (as it already exists in the area of climate variability, and the planning tools to address risk and uncertainty already exist) AND stress the need for greater institutional co-operation between the climate and development communities (which may be beyond the scope of this document). Again, nice job! (John Macintosh Callaway, Forskningscentre RISØ)</p>	Addressed
17-17	A	0				<p>The chapter has really come together. It is very well organized and is reflective of the broad literature in this field.</p> <p>The conceptual framework is strong, though more prominence might be given to the discussion of “multiple stressors”. There was also much discussion of “adaptation” at the LUCC conference in Bonn last month and the authors might consider looking at this --- for example there appear to be two strong roots to discussion of adaptation - the one of White, Burton, Kates origin in the 1970s that has continued to develop, and the one that Adger’s work illustrates. The chapter should make an effort to explicitly recognize these streams of thought. The conceptual framework should inform other IPCC chapters such as the regional chapters – Africa etc.</p>	

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						<p>The inclusion of methods strengthens the chapter.</p> <p>The case studies enrich the narrative – I particularly appreciated the inclusion of a “box” (17.4) on gender issues.</p> <p>The chapter has extended beyond its page limits. Section 17.4.1 – on GEF and NAPA is too long. Also the authors should consider cutting where the “boxes” duplicate the text; a specific example is Box 17.2. You could also reduce Section 17.4.3 – the subsections could be limited to around 2 paragraphs focusing upon adaptation.</p> <p>The authors should be complimented on the success of this revision.</p> <p>(David Campbell, Michigan State University)</p>	Addressed
17-18	A	0				<p>What sorts of adaptive behavior are we talking about? The chapter authors reference a couple, taking advantage of a longer growing season or promotion of tourism. But there are others. Different crops might be called for, warmer weather might provide more opportunity for solar heat capture, there could be less investment in facility heating, different apparel and others. I would like to see the authors introduce this theme as a subsection of the chapter and discuss it more fully. No reason why policy makers shouldn't be aware that they may have a few positive opportunities for adaptive behavior along with much responsibility to plan for adverse ones.</p> <p>(Michael Canes, Logistics Management Institute)</p>	Addressed
17-19	A	0				<p>This is a thorough, useful chapter. However, it does not provide a summary of the main TAR findings, nor clearly express how knowledge has progressed since the TAR.</p> <p>(Richenda Connell, Acclimatise)</p>	Addressed

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17-20	A	0				<p>There are a number of interesting points here that could be important to AR4 -- however they seem to appear principally in the Exec sum and not in the main chapter. These are about multilevel actions, and interdependent decisions operating across different levels (or scales) of action across different actors. Also of interest is discussion regarding limits to adaptation which may be bounded by high extremes or rapid rates of change. These themes need to come out in the main discussion.</p> <p>(Jan Corfee-Morlot, University College London & OECD)</p>	Addressed
17-21	A	0				<p>The writing team has made good progress in mapping out key factors in adaptation to climate change - particularly the link between adaptation to climate change with vulnerability and the development agenda. Clear indications that adaptation is not only for developing countries are also made. Authors have a difficult task though as they have to provide a broad picture on an issue that is all encompassing in terms of sectors, systems and regions yet in terms of implementation it is very much locally based. I found the chapter lacking in terms of providing one with a spatial and temporal view (general picture) on issues of adaptation globally. The focus is strongly on factors, parameters, constraints and process in adaptation – with an inclination towards being theoretical/abstract. In terms of spatial coverage, it might be that greater interaction with regional chapters is needed for instance, to be in a position to say, under current adaptation practices or capacity and constraints, which regions are making progress and which ones are lacking behind. This might also be achieved by building on TAR -i.e. looking at regions that were identified to be of high or low adaptation capacity to see what the progress is since then. Africa for instance, was identified to be of low adaptation capacity yet as it is now this chapter is abstract from an Africa point of view. It has some identifiable links to parts of Asia, the islands and the developed world mostly. In fact in section 17.4 under the climate driven initiatives (17.4.1) there is a more direct reference to developing countries as a group identified to be the most vulnerable while earlier sections do not give this a strong focus. - I suggest that an Africa climate change impacts and adaptation expert be co-opted into the writing team of Chapter 17. For</p>	

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17-23	A	0				<p>The treatment of multiple stressors is contained in box 17.3 and a final very short sub-section. This should be lifted out as a more substantial separate section earlier on, perhaps in conjunction with the current 17.3.3. Adaptation takes place in a multi-stressor environment and the process of adaptation cannot be discussed as a separate phenomenon from the social context. A stressor such as conflict, for example, makes some adaptation options unavailable by excluding people from safely accessing certain areas or resources. People adjust their livelihoods to minimize their vulnerability to conflict or other stressors. By enhancing their human security in the face of a range of stressors, people may adapt differently than if climate change was the only, isolated stressor, and people may even adapt to multiple stressors (such as conflict or economic globalisation) in such a way that may make them more vulnerable to climate change as an isolated phenomenon.</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed
17-24	A	0				<p>Some of the discussion in this chapter seems to be separated from considerations of people. Descriptions of adaptation is biased towards formal policies and interventions with little discussion of adaptation that people are actually carrying out. Not enough attention is paid to social differentiation in vulnerability and adaptation, or the multiple stressors that shape such differentiation. Similarly, there is a lack of discussion of how adaptation may benefit (or disadvantage) people or different social groups differently. One of the important social factors, gender, is described in a box. I believe gender, and other important social factors, should be treated throughout the text with a focus on social differentiation of adaptation and its effects, rather than as a separate box. It should be considered that because vulnerability as well as the benefits of adaptation are socially differentiated, adaptation may have redistributive effects.</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed
17-25	A	0				<p>References which may be useful: Cutter S 2003 The vulnerability of science and the science of vulnerability Annals of the Association of American Geographers 93</p>	

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						<p>1-12. Eakin H 2003 The social vulnerability of irrigated vegetable farming households in central Puebla Journal of Environment and Development 12.4 414-429</p> <p>Morrow B H 1999 Identifying and mapping community vulnerability Disasters 24 1-18.</p> <p>Eriksen, S, Brown, K and Kelly, M. 2005. The dynamics of vulnerability: Locating coping strategies in Kenya and Tanzania. The Geographical Journal, (In Press, December 2005).</p> <p>Eriksen, S. (2004) Building adaptive capacity in a 'glocal' world: Examples from Norway and Africa, ESS Bulletin 2 (2): pp. 18-26.</p> <p>Lisø, K. R., Aandahl, G., Eriksen, S. and Alfsen, K.H. 2003. Preparing for impacts of climate change in Norway's built environment. Building Research & Information, 31 (3-4), 200-209.</p> <p>Eriksen, S., Øyen, C., Underthun, A., Liso, K and Kasa, S. 2005. Adaptation to climate change: the case of the housing sector in Norway. Paper presented at the IHDP Open Meeting 2005.</p> <p>Orindi, V. and S. Eriksen, 2005. Mainstreaming Adaptation to Climate Change in the Development Process in Uganda. Ecopolicy Series no. 15. Acts Press, Nairobi. ISBN 9966-41-130-5.</p> <p>Eriksen, S. 2005. The role of indigenous plants in household adaptation to climate change: The Kenyan experience. In Climate Change and Africa, ed. P.S.Low, Cambridge University Press, Cambridge pp. 248-259.</p> <p>Eriksen, S. and Næss, L.O. 2003. Pro-Poor Climate Adaptation: Norwegian development cooperation and climate change adaptation - an assessment of issues, strategies and potential entry points. Report 2003:02. CICERO, 75pp.</p> <p>Eriksen, S. and Lind, J. 2005. The impacts of conflict on household vulnerability to climate stress: evidence from Turkana and Kitui Districts in Kenya. Human Security and Climate Change. An International Workshop. Holmen Fjord Hotel, Asker, 21-23 June 2005. International Peace Research Institute PRIO, Centre for International Climate and Environmental Research, University of Oslo (CICERO) and The Global Environmental Change and Human Security Programme (GECHS).</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed
17-26	A	0				<p>Very well documented and informative. The most important part concerns how to enhance adaptation. However, limitations to adaptation exist and it would be really of high interest to prepare especially developing countries in Asia and Africa to</p>	Addressed

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						readily face the climate change impacts. (Savitri Garivait, The Joint Graduate School of Energy and Environment (JGSEE))	
17-27	A	0				<p>The same comment with regard to performance indicators. These are not considered in this chapter on adaptation, except in terms of measuring the adaptive capacity of a community. Performance measures or indicators are key to sound decision-making, which is what adaptation should be about. A good reference: Keeney, R. & Gregory, R. 2005. Selecting attributes to measure the achievement of objectives. Operations Research 53: 1-11.</p> <p>There is surprisingly little written in this chapter on the processes for stakeholder involvement in adaptation decision-making. We have found that most adaptation decisions at the municipal or regional level involve multiple stakeholders often with competing interests. How you involve stakeholders in decision-making is a crucial question. We have had some success with an analytic-deliberative process (National Research Council 1996. Understanding Risk: Informing Decisions in a Democratic Society. National Academy Press, Washington, DC). To organize such a process requires understanding of each stakeholder's issues and careful facilitation of the process to ensure that reasoned deliberation occurs, not aggressive position-taking. Of course this all supposes a political system that would allow for group decision-making of this kind...</p> <p>(Philip Hill, Geological Survey of Canada)</p>	Addressed
17-28	A	0				<p>The chapter has decided to couch adaptation as conscious (planned and reactive) adjustments but perhaps something should be said about autonomous social adjustment, because although it may be possible to argue that if an adjustment in response to climate is conscious, if mainstreaming adaptation to climate change is considered, then a larger range of responses is possible. Both co-benefits and maladaptation (the latter in the sense that it increases vulnerability to climate) can come from responses to other stressors. Perhaps a diagram showing adaptation to climate and more broadly can illustrate the flow of responses from climate to and</p>	Addressed

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						<p>from other activities. The illustration of adaptive capacity as potential and adaptation as change in state may also aid this process. This will also dovetail into Chapter 20's concerns about development and sustainability.</p> <p>(Roger Jones, CSIRO)</p>	
17-29	A	0				<p>Overall, the chapter is very comprehensive. Lacking, however, is a discussion of where adaptation options and practices come from. It would seem useful to have some mention of sources for adaptation(s), whether by innovation, diffusion, exhortation, etc. In reality, the environmental changes coming from at least short-medium term climate change are unlikely to create circumstances which human communities have not experienced somewhere, sometime previously.</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	
17-30	A	0				<p>Following up on that comment, one source of potential adaptations (in addition to innovations and soft (non structural) and hard (structural) alternatives is using areas analogous now to anticipated conditions in future.</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	Addressed
17-31	A	0				<p>This chapter covers the state of the art and condenses literature's major finding in a very comprehensive and comprehensible manner. This achievement itself is "added value". Additionally they report on initiatives for enhancing adaptation. Furthermore they move on and draw the attention to need for action, offering some careful advice for policy makers how to make use of the theoretical and empirical findings. This chapter follows the agreed plenary outline and the sections fulfil the expectations generated by their headings. Of course, it is always debatable whether some aspects could be further stressed (e.g. multiple stressors, technology), and others could be regarded less (e.g. assessment of adaptation practices). But I personally find the foci to be very well chosen and set in a consistent manner, esp. considering the given outline, the limited length and the piles of relevant literature. Summing up, I am happy to write down only a few specific comments, none of</p>	Addressed

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						them having the potential to lead to time consuming alterations of the text. (Margareta E. Kulesa, Mainz University of Applied Sciences)	
17-32	A	0				<p>More of a question than a comment: are surprises in climatic development factored in to the current adaptation strategies, for example cooling in parts of Northern Europe instead of warming?</p> <p>Adaptation - natural and managed - should be a basic assumption in any study trying to understand the impact of climate change.</p> <p>Economic and social integration, e.g. in EU, could ease adaptation, for example by providing a more flexible labour market for people having to escape negative impacts of climate change.</p> <p>(Pasi Kuoppamäki, Sampo plc)</p>	Addressed
17-33	A	0				<p>Note: In practice, it is difficult to distinguish between measures to adapt to climate change and measures put in place for natural resource management, DRM. These projects and programs can also contribute to building better resilience or buffers around systems though they are not identified as such. A gap is the development of simple proxy indicators for measuring a reduction in vulnerability to climate change in a system which can be attributable to a number of interventions in the social, economic, political and NRM sides.</p> <p>(Liza Leclerc, UNEP)</p>	Addressed
17-34	A	0				<p>Thank you for the invitation to review the relationships between Ch17 and Ch18 for WGII. I will attempt to address the three questions below but must admit that I could not resist the opportunity to make a couple of comments on the chapters individually.</p> <ol style="list-style-type: none"> 1. Complementary. Do the chapters contradict one another? 2. Concise. Are there overlaps between the two chapters? 	No – complementary

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						<p>3. Complete. Is all the necessary material assessed somewhere in these two chapters?</p> <p>In general both chapters are well written and do not substantially contradict or overlap. They also cover a wide range of the literature.</p> <p>Chapter 17 does not provide a summary of what was said in the TAR and it is therefore difficult to assess what has been learned since the TAR. Chapter 18 does a fairly comprehensive summary of the TAR and its relevance to this new chapter</p> <p>There are some inconsistencies in the use of definitions of key terms such as adaptation, adaptive capacity and vulnerability (e.g. Ch18, p14 line 37 uses TAR definition) which may relate to the varied use of these terms in the literature that they review. Chapter 17 in particular is very assertive as to the definitions they will use and is not always clear about how they vary from those used in the literature, or in the everyday practices of those adapting to climate change</p> <p>There is some repetition in the discussion of the role of institutions such as Kyoto and GEF in adaptation/mitigation. And in some ways, these discussions are not supported by the scientific literature. There is a need for a critical and evaluative review of these institutions but if I understand IPCC then this should derive from the published literature not the chapter authors.</p> <p>Chapter 17 has refs of value to 18 and vice versa (e..g line 17, p3 of Ch 18)</p> <p>I believe both chapters overemphasize some of the differences between mitigation and adaptation, especially that mitigation is global and public and adaptation local and private. The evidence really suggests that both A and M must happen at all scales and across all actors.</p> <p>Both chapters tend to underplay the role of the private sector and NGOs in adaptation or mitigation/adaptation. In particular more attention needs to be paid to how investment and insurance sectors are adapting to climate change</p> <p>p25 of Ch18 contradicts extensive discussion of gender and adaptation in Ch17</p>	<p>Addressed</p> <p>Now deleted</p> <p>Addressed</p>

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						<p>Ch18 provides a discussion of research gaps whereas Ch17 does not do that very clearly</p> <p>Both chapters could mention the fundamental challenges and debates in projecting adaptation out into the future that confound many studies especially 1) the reliance on highly uncertain projections of precipitation at the regional level 2) the profound difficulties in projecting human behaviour and institutions far into the future.</p> <p>1. This chapter should perhaps include a discussion on the adaptation of ecosystems to climate change, at least in the context of conservation and protected areas. There has been quite a bit of literature on this in the last few years. If this is discussed adequately elsewhere then refer to it but it is a concern and a focus of investment in adaptation, especially as it affects human use of ecosystems (e.g. forests and grasslands).</p> <p>2. Deliberative and participatory methods could be discussed as a separate set of methods</p> <p>3. Is there a vulnerability chapter or extensive discussions of vulnerability in other chapters that they need to refer to?</p> <p>4. Maybe more references to studies in different regions could be made especially those coming out of country studies and AIACC.</p> <p>(Diana Liverman, Oxford University)</p>	Chapter 1
17-35	A	0				<p>Overall, Chapter 17 looks to be in quite good shape and provides a lot of useful information.</p> <p>(Michael MacCracken, Climate Institute)</p>	
17-36	A	0				<p>The chapter covers a lot of literature, but often seems overconcerned with defining abstract terms and discussing relations between them: it could do with more concrete examples. Even so, soem key terms seem to shift in meaning between</p>	Addressed

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						<p>sections of the chapter, e.g. there is an issue of whether adaptation to climate variability and adaptation to climate change are viewed as on a continuum, or as fundamentally different entities, with the language sometimes suggesting the one, sometimes the other. There is also a certain amount of repetition.</p> <p>(John Morton, Natural Resources Institute, University of Greenwich)</p>	
17-37	A	0				<p>The chapter contains much valuable information, but also has several overarching problems: (1) In different sections, the logical structure is unclear (more specific comments below); (2) it suffers from what I would call "epistemic narrowness", i.e., it seems like the breadth of research undertaken over the past 5 years and published in a far broader set of relevant journals and by a broader set of researchers than is cited here, is not adequately reflected; (3) there is an imbalance of regional foci with some regions being barely or not at all included (e.g., Latin America is underrepresented, I don't think I saw any Australian examples, and the polar regions are completely absent - which, in light of the Arctic Climate Impacts Assessment is rather disturbing, etc.); (4) the chapter is not clear on urgent research needs, e.g., it says nothing about the limits of adaptation with regard to abrupt changes or in the case of no-precedent regime shifts and that we know next to nothing about that, but many other research priorities could, but are not, listed; of course, many other research priorities exist as well - this needs to be added in a concluding section; (5) the chapter is virtually quiet on the challenges of implementing measures to adapt or build adaptive capacity, and thus misses an important opportunity to shape the needed debate on adaptation (right now it sounds like there is lots we can do, but the chapter is somewhat cavalier about how hard some of these measures will be to implement, so it doesn't convey a sense of the challenges involved in that at all!); and (6) the executive summary does not well enough reflect the chapter, and key messages burried in the text are missing from it (see details below).</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed

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17-38	A	0				<p>It would be useful with more specific references to new findings and changing understanding of concepts since the TAR. It seems the only place a specific reference is made is in sub-chapter 17.3.2 (from page 23, line 47).</p> <p>References to insights from local adaptation strategies to cope with past and present climate stress (e.g. page 6 line 28-38 and page 28, line 44-50) would benefit from further discussion on opportunities and challenges in using local or indigenous knowledge. There is much literature on people and communities' ability to adapt to past climate stress, but integrating such experiences in adaptation policy and practice might be less straightforward. Studies from the Arctic since the TAR (e.g. Cruikshank, 2001; Krupnik and Jolly, ed., 2002; Ford and Smit, 2004; Duerden, 2004) could be particularly useful in this respect.</p> <p>(Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))</p>	Addressed
17-39	A	0				<p>The chapter argues that adapting to climatic extremes is a priority, but does not draw from a number of innovations stemming from the literature and policy work on natural disaster risk reduction (both pre- and post-event). Many of the comments that follow point to specific examples where contributions are to be made.</p> <p>(Mark Pelling, King's College London)</p>	Disasters management Addressed
17-40	A	0				<p>Generally, it is interesting and excellent chapter with valuable information and will be of great interest to various groups. However, it could be made more attractive to the readers if in the final version, some of these suggestions were considered:</p> <p>1- The Executive Summary does not reflect the comprehensive input of the authors to chapter 17. It reads like introduction rather than a summary of a excellent chapter. Need to include, options to enhance adaptive capacity , reference to MCA outcome, reference to uncertainty, very briefly mention a good example of adaptation, reference to the cost effectiveness, reference to the role of technology, reference to health and gender aspects, reference to the global initiatives and the</p>	Addressed

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						chapter. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-41	A	0				<p>1- Usually, talking about adaptation, we go from government, multilateral orgs, to local community, NGOs (civil society orgs); those last actors are very important but we can not forget about "private sector" (private enterprises -corporations). I think it should be mentionned the "Equator Principles" adopted by private banks (in cooperation with IFC and World Bank rules) for better practices for private loans and investments. This can be also a good effort in mainstreaming the Conventions concerns.</p> <p>2 - On civil society and social capital: the authors mention that aspect in many sections of the chapter; however the references are scattered all over the chapter and, for that, loses a bit of its importance.</p> <p>(Silvio Rocha Sant'Ana, Fundação Grupo Esquel)</p>	Addressed
17-42	A	0				<p>General Comments: Unlike previous IPCC AR adaptation chapters, this chapter is not heavily strewn with references. This is both refreshing and frustrating. While fewer references certainly makes it easier for the reader, as the text flows more smoothly, it has certain disadvantages. For one, it means that certain statements are not backed up by evidence that the reader can immediately access. Instead, the reader needs to go out and look for the source of the information for him or herself. This also makes it easier to discount the statements made in the chapter, particularly observations that are dependent on social science analysis.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-43	A	0				<p>General Comments: Another important issue with this chapter is the focus on adaptive capacity. Personally, I find it overwhelming, particularly as adaptive</p>	

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						<p>capacity appears to have had its day as an expression - in other words, I thought many people felt it was no longer a helpful concept when talking about how to adapt to cc. My other concern is that the sections on barriers to adaptation could be much more expanded as I think this is where policymakers really struggle - they don't understand the barriers. Therefore, I would think that the adaptive capacity discussions could be minimised significantly, and the barriers and concepts discussions could be expanded greatly.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-44	A	0				<p>General Comments: An additional issue with the chapter is how it has woven the UNFCCC decisions, plans and programmes into it. Although I myself have argued for a greater understanding by scholars of the policy perspective, I do not think that it is appropriate to have the amount of references to the UNFCCC that appears in this chapter. To begin with, many of the references are in language that looks like it has come straight out of the UNFCCC documents, with words such as "welcomes". "invites" etc. This moves the chapter dangerously close to the policy-science line that the IPCC has strived so hard to stay away from. I think you need to consider very carefully how you phrase any references to the UNFCCC policy agenda. In addition, you should consider to what extent this overwhelming amount of references to the UNFCCC narrows the scope for adaptation work - do we really want to suggest that the UNFCCC is the only available policy framework for adaptation work? Clearly this is not the case, irrespective if you believe in the effectiveness of the UNFCCC or not. There are a number of other initiatives to address the impacts of climate change, including through agriculture and water management research and projects. This single-minded support of the UNFCCC may put off those who have doubts about the effectiveness of large multi-lateral bodies to address immediate needs at the local scale.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-45	A	0				<p>The chapter reveals signs of "drafting by committee". For example, a para. introduces a thought, the next one jumps to another thought, without transition or</p>	

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						<p>linkage. This often leads to an enumeration of issues, rather than a logical sequence of interconnected arguments. There needs to be more attention given to transitions. While this occurs frequently, I cite as a single example p.3, line 27. The discussion of vulnerability is not connected to the previous discussion of limits to adaptation.</p> <p>The chapter does not pay sufficient attention to reports and gray literature.</p> <p>The chapter presents useful information for social scientists, but rarely addresses the information needs of policymakers and resource managers. This is a critical flaw. Questions that should be addressed in language accessible to practitioners include: 1. What adaptation measures are available? 2. How does adaptation differ according to climate zones, ecological regions and economic development? 3. What are the specific adaptation scenarios for sea level rise, water scarcity, flooding, (others). 4. What can we learn from natural analogues (subsidence, drought, flooding, ...)? 5. What can we learn from historical analogues (previous adaptation to climate change or climate variation)?</p> <p>Adaptation is the key response strategy available to resource managers at regional and local levels. In the case of water resources--my field of expertise--managers tend to ignore climate change impacts because the information available to them is not place-specific. The chapter says nothing that would help the resource manager to act differently. In arid regions we tend to tell the manager: absent reliable regional climate change predictions assume that droughts will get more frequent and more pronounced. Prepare for the next drought, and that will go a long way toward preparing for climate change. Is that a valid argument?</p> <p>My overall judgment is that the chapter is strong on talking about trees and weak on talking about the forest, i.e. the role of adaptation as a tool for science, technology and policy.</p> <p>(Jurgen Schmandt, Houston Advanced Research Center)</p>	<p>Addressed</p> <p>Addressed</p>
17-46	A	0				Any assessment of adaptive capacity is meaningful in the context of a particular	Addressed

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						<p>focus that is confusing to the main emphasis of the paper (see comments below).The introductory section on key terms does not represent a clear structure and also the relationship with previous definitions used in the TAR are not always evident. Section 17.1.2 is highly abstract and limited in its focus and it is does not set a clear framework for the subsequent sections. At present I do not see its added value and believe it could be deleted with some of its core elements (as well as the guiding elements) being incorporated in other sections. Sections under 17.2 form the backbone of the paper and reflect more closely the practical focus taken within the development context. Among development agencies, there is shift away from the term "adaptation" towards talking of "climate risk management" or "climate proofing" to reflect the need to address existing climate relate vulnerabilities and future climate impacts, and to mainstream efforts addressing climate variability and change. This may be further emphasized in the chapter and a stronger emphasis on links with other efforts aimed at vulnerability reduction should be made. Currently the chapter largely ignores the literature and tools provided in the field of disaster risk management, which may also inform disaster risk management practices. I would also like to draw attention to the discussion paper "Disaster Risk Management in a Changing Climate" (Sperling and Szekely, 2005), which was written on behalf of the Vulnerability and Adaptation Resource Group (VARG) in the context of the World Conference on Disaster Reduction (WCDR). Exploring the increasing convergence in focus on vulnerability reduction in the fields of disaster risk management and climate change adaptation, it discusses conceptual differences and opportunities and barriers for a more collaborative approach within the development context. By currently paying on limited attention to the terminology and specific literature in the disaster risk management field the chapter detaches itself from this need for bringing these communication streams on related issues together. Within the development context, climate change is at the end only one part of broader set of risk management approaches aimed at addressing natural hazards and environmental changes. While a comprehensive treatment of all the aspects is likely beyond the scope of the paper, the link with disaster risk management and current climate risks in particular should be teased out in greater detail here (especially when exploring challenges to the mainstreaming process).</p>	<p>Addressed</p>

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						<p>Another aspect that should receive more detailed recognition are levels of uncertainty and the implications of various temporal and spatial scales for implementing adaptation activities (it is there but should receive greater attention). Basically, climate change projections may provide the following insights on climate change (at different scales of interest): a) quantitative, b) qualitative, c) no change, d) uncertain. Depending on the information value and the development activity of concern the implications for adaptation differs. However, even if there is no clear projection on the direction of change, knowledge of existing climate vulnerabilities and trends may provide insights into the design of adaptation measures, implying a greater need for flexibility and continuous re-evaluation of risk (e.g. emphasized in Sperling and Szekely 2005). Weighing uncertainty is also an integral part of disaster risk management. Finally, a broader scope of ongoing adaptation practices undertaken by various stakeholders (NGOs, development agencies and development institutions) should be highlighted (some suggestions are made below). Hope this is helpful. Best of luck.</p> <p>(Frank Sperling, The World Bank)</p>	Addressed
17-49	A	0				<p>A final comment on the chapter as a whole is that the chapter does not discuss differences that might be expected for the 2030's, 2050's and 2080's as the guidance notes suggested. This may be asking too much for a chapter that is primarily concerned with globally implemented methods, but it might be useful to have some discussion of the basic evolution of scenarios i.e. how the rate of change is expected to increase in the future and the implications of this for assessments of adaptation/vulnerability/resilience.</p> <p>(Mark Tadross, University of Cape Town)</p>	Attempted but not categorically
17-50	A	0				<p>The overall content and balance seems appropriate for the chapter purpose. Exemplification is reasonably detailed and has reasonable global coverage, though this might be better balanced to include e.g.s from all continents/ a wider set of regions? (there is a strong UK, Asia, Pacific dimension to eggs and cases). It would be worth checking the relationship of the Executive summary to the main text as</p>	Addressed

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						<p>there does seem to be some imbalance, e.g para 3 of the exec summary is important but the issues in it (adaptation not just to climate chnage) dont come through as a strong message in the chapter content.</p> <p>There is a need for some very very careful rewriting and proffing. Grammar is very weak in places, sentences very long, nonsequeters etc. Some will be highlighted below but they are too numerous to mention them all.</p> <p>(David Thomas, University of Oxford)</p>	
17-51	A	0				<p>I advised against a separate chapter on adaptation, and I have not changed my mind. The current chapter is generic and vague, with nice words but little content. The chapter would improve if there were more concrete examples. The chapter has a decided bias against anything quantitative or economic; the respective literatures are just ignored. This should be restored.</p> <p>(Richard S.J. Tol, Uni. Hamburg)</p>	Addressed – more examples, more on economics, and more reference to Richard Tol's work
17-52	A	0				<p>The chapter would read better if the goals of adaptation were also given in addition to or instead of definitions. The chapter gives the criteria for decision making but is silent on criteria for selection of an ecosystem for adaptation. It is evident from the limited examples of adaptation practices that there are limited numbers of such projects known. How to close this knowledge gap would be very important.</p> <p>(Shem Wandiga, University of Nairobi)</p>	Addressed
17-53	A	0				<p>There is an deep impression that the chapter reads like a chapter of a textbook for college students: concepts, definitions, classification, examples; lacking summarizing and instructing. The other general thing is too much content divied into for developing countries and for developed countries.</p> <p>(Shaohong WU, Institute of Geographical Sciences and Natural Resource Research,</p>	Addressed

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						CAS)	
17-54	A	0				"While the chapter cites references mostly published after the year 1999, the chapter does not clearly show to readers about the new progress in climate change VIA research since the TAR. The chapter mainly presents the impact assessment in Asia and has very little coverage of climate change vulnerability and adaptation. " (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-55	A	0				"The chapter provides a conceptual and theoretical basis of adaptation science and policy. It is well written and represents a creative way to conduct adaptation assessment. The concepts, methodologies and applications presented in the chapter are clear, articulate, intelligent and an excellent review of progress after TAR." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-56	A	0				A new section is proposed to be added in Section 17.2.4, describing the applications of Game Theory in analyzing adaption mechanisms. Game Theory provides possibilities for analysts to model interactive decision making process. Zhao (2002) established a set of game models to analyze the interactions among governments at different levels in the filed of flood control in China. (Yong Zhao, China Huaneng Technical Economics Research Institute)	Game theory literature not incorporated – searches showed that this isn't sufficiently developed literature
17-57	A	0				There is a lot of text covering adaptive capacity - and not as much covering adaptation practices - this could be balanced a bit more. (Gina Ziervogel, University of Cape Town)	Addressed
17-58	A	1	0			Following are nine references alluded to in the comments. Most are available from my home page at http://members.cox.net/igoklany/ . I'll also be happy to send hard	

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						<p>copies, if requested:</p> <ol style="list-style-type: none"> 1. Goklany, IM. 1992. "Adaptation and Climate Change." Paper presented at the Annual Meeting of the American Association for the Advancement of Science, Chicago, February 6-11, 1992. 2. Goklany, IM. 1995. "Strategies to Enhance Adaptability: Technological Change, Economic Growth and Free Trade." Climatic Change 30: 427-449. 3. Goklany, IM. 1999. "Richer is More Resilient: Dealing With Climate Change and More Urgent Environmental Problems." In R. Bailey, ed., Earth Report 2000, Revisiting the True State of the Planet (New York, NY: McGraw-Hill), pp. 155-187. 4. Goklany, IM. 1999a. "The Future of the Industrial System." Invited Paper. International Conference on Industrial Ecology and Sustainability, University of Technology of Troyes, Troyes, France, September 22-25, 1999. Also available in: D. Bourg and S. Erkman (eds). 2003. Perspectives on Industrial Ecology (Sheffield, UK: Greenleaf Publishing), pp. 194-222. 5. Goklany, IM. 2000. "Potential Consequences of Increasing Atmospheric CO2 Concentration Compared to Other Environmental Problems." Technology 7S: 189-213. 6. Goklany, IM. 2003. "Relative Contributions of Global Warming to Various Climate Sensitive Risks, and Their Implications for Adaptation and Mitigation," Energy & Environment 14: 797-822. 7. Goklany, IM. 2005. "A Climate Policy for the Short and Medium Term: Stabilization or Adaptation?" Energy & Environment 16: 667-680. 8. Goklany, IM. 2005a. "Is a Richer-but-warmer World Better than Poorer-but-cooler Worlds?" 25th Annual North American Conference of the US Association for Energy Economics/International Association of Energy Economics, September 21-23, 2005. 	<p>Read and incorporated where appropriate</p>

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						9. Goklany, IM. 2005b. "Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development," accepted by Mitigation and Adaptation Strategies for Global Change. . (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-59	A	1	0			One additional source might be of interest regarding this chapter, esp. sections 17.1.1 and 17.3.1 and 17.4.1: German Advisory Council on Global Change (WBGU): World in Transition - Fighting Poverty through Environmental Policy (Earthscan, forthcoming in dec. 2005, already available as download from www.wbgu.de) (German Edition was already published 2005, Springer Verlag) (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-60	A	1	28	1	28	Concept and Methods(M:capital letter) (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	
17-61	A	1	29	1	29	17.1.1 Key terms: adaptation, vulnerability, resilience (Changed to "and resilience") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed – now shortened
17-62	A	1	30	1	30	17.1.2 Method used to analyze adaptation.(omit .) (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-63	A	1	33	1	33	17.2.1 Adaptation Practices (Changed to "practices") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-64	A	1	34			item 17.2.2 is missing (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed

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17-65	A	1	34	1	34	17.2.3 Examples of Adaptation Practices(Changed to "adaptation practices") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-66	A	1	35	1	35	17.2.4 Assessment of Adaptation Practices(Changed to "adaptation practices") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-67	A	1	37	1	37	constraints' is used here and in the title for section 17.4. I wonder if it is possible to use the word 'limitations' here to distinguish the different meanings within section 17.3 and 17.4 ? (Mark Tadross, University of Cape Town)	Addressed
17-68	A	1	42	1	42	"17.4 Enhancing adaptation:Opportunities and constrains" might be changed to "17.4 Opportunities and challenges" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-69	A	1	51			This is a well written chapter with clearly defined concepts on adaptation and with an assessment of the state of knowledge on adaptation practices, options, constraints and capacity in relation to climate change in accordance with the agreed IPCC Plenary outline. However more critique of the literature reviewed would significantly enhance the assessment. Apart from the literature on methodology most of the findings presented have not been sufficiently critiqued. The authors have attempted to evaluate impacts for the three time scales however owing to limitations of the literature this is not reflected throughout the assessment, save for three instances. Some of the text can be summarised indicating the key issues to avoid repetitions and keep within the maximum page length, as indicated in comments below. A concluding paragraph at the end of the chapter is necessary. (Maggie Opondo, University of Nairobi)	Addressed

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17-70	A	2	0	2	40	Executive summary is not an abstract. It should follow closely the outline of the chapter. No section should be left out. If possible a short version of the section sub headings should be used at the beginning of each paragraph (James Adejuwon, Obafeme Awolowo University)	Addressed
17-71	A	2	0			Is sufficient attention given to climate change increasing opportunities? The chapter emphasizes negative challenges, which of course should dominate discussion, but opportunities might receive more attention . (C. Gregory Knight, Pennsylvania State University)	Addressed
17-72	A	2	0	2		Does not reflect the text adequately. For example, the chapter says something about the growing literature on social acceptability of adaptation measures as a key limiting factor, this is not mentioned at all in the exec. Summary. In general I would propose to think much harder about how this chapter can help shape the adaptation debate that needs to happen, and formulate messages upfront and in bold letters in the Exec. Sum. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-73	A	2	1			Executive summary is quite disjointed and essentially a collection of many general statements. The flow of the summary could be improved. I realise the purpose of the chapter is to summarise global knowledge on the subject but I wonder if it would perhaps be more interesting if the reader could be directed to specific regions/countries which provide examples for some of these statements ? (Mark Tadross, University of Cape Town)	Addressed
17-74	A	2	1	2	40	This summary gave a good introduction to this chapter, however, it talked more importance rather than the themes of the chapters. Thus, the more concrete contents might be supplied in this part in order to show the outline of this chapter.	Addressed

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						(Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	
17-75	A	2	3			<p>I wouldn't say that CC changes "novel risks", rather it magnifies existing risks. Consider malaria, hunger, coastal flooding , threats to biodiversity etc. None of these are "novel". I would modify change the sentence to say, "But CC could magnify existing risks, which over time may lie outside of the range of recent experience."</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	Addressed – range of experience point
17-76	A	2	3	2	3	<p>To start out with nomenclature that should be used, it might help to say "Societies have a long record of seeking to adapt to the variations of weather and climate and the impacts that result."</p> <p>(Michael MacCracken, Climate Institute)</p>	Addressed
17-77	A	2	3	2	4	<p>The opening sentences place a heavy emphasis on climate change representing new risks, which are often outside the range of experience. This leads the reader to expect that adapting to climate change in most cases entails different measures from addressing vulnerabilities to current climate variability and extremes. Adaptation therefore becomes a separate, distinct activity. In the following sections of the executive summary it is however well recognized that adaptation efforts have to be part of an integral effort within the broader development context and often begin with addressing vulnerabilities to current climate extremes. From the development perspective the goal has to be to comprehensively manage current and future climate risks to development processes. Such a climate risk management approach is for example advocated by Burton and van Aalst for the World Bank (2004; "Look Before you Leap", World Bank Environment Department Papers No. 100). This shift is reflected by the increasing usage of the terms "climate risk management", "climate proofing" instead of "adaptation" by many agencies. It would therefore be beneficial if a greater emphasis is placed on adaptation as a forward looking climate risk management approach in the opening statement of the</p>	Addressed

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						chapter to reflect this trend. (Frank Sperling, The World Bank)	
17-78	A	2	3		4	Give hints of the novel risks: these are not transparent in the text. (David Thomas, University of Oxford)	Addressed
17-79	A	2	4			insert "local" outside the range of local experience (C. Gregory Knight, Pennsylvania State University)	Addressed
17-80	A	2	7	2	8	It would be clearer to say "These measures, which involve policies, institutions, technologies, and individual actions, are being put in place in many developed and developing countries." (Michael MacCracken, Climate Institute)	Addressed
17-81	A	2	8			Measures being put in place involve both individual and collective action, as evidenced by e.g., activities in the community-based development arena. (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-82	A	2	10	2	10	I would suggest replacing "rather" by "rather are implemented" (Michael MacCracken, Climate Institute)	Addressed
17-83	A	2	16		16	add regional (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-84	A	2	20	2	22	It may be of some relevance to mention the lack of coping capacity of a highly industrialized country to address Katrina, Wilma and other natural disasters whose severity was exacerbated by climate change.	Addressed

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						(Bonizella Biagini, Global Environment Facility)	
17-85	A	2	20		20	add that the relevance of these indicators and their ability to predict adaptive capacity varies by scale (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-86	A	2	21			for "need not" substitute "does not necessarily" (C. Gregory Knight, Pennsylvania State University)	Addressed
17-87	A	2	21	2	21	I would suggest replacing "need not" with "does not always" and then replacing "might" with "are likely to" in order to stick to the IPCC lexicon. (Michael MacCracken, Climate Institute)	Addressed
17-88	A	2	21		22	"Even developed countries ..." I think is unfortunate wording. You could make a much clearer, much stronger statement here. Such as: contrary to common assumption, developed countries also face significant constraints to adaptation. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-89	A	2	21		21	Delete 'might'. (David Thomas, University of Oxford)	Addressed
17-90	A	2	21			Even developed countries - cut out even! Replace with and or something else (Gina Ziervogel, University of Cape Town)	Addressed
17-91	A	2	24	2	27	I surely understand that the executive summary can not be written prior to completing the other sections of the chapter. So ist just to underline that care should be taken in using terms that are either not self-explanatory or too ambiguous. For instance, it is difficult to grasp the meaning of "dynamic vulnerabilities".	Addressed

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						(Manfred Lexer, Institute of Silviculture)	
17-92	A	2	25			add phrase about 'vulnerabilities are dynamic', depending on changing internal characteristics and external stressors - need to reflect vuln defn that is presented further on. (Gina Ziervogel, University of Cape Town)	Addressed
17-93	A	2	26	2	26	"infectious diseases": as the reference is presumably to HIV/AIDS, this should be made explicit (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-94	A	2	30		30	add "institutional changes" (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-95	A	2	30		30	What does 'addressing climate variability' mean? (David Thomas, University of Oxford)	Addressed
17-96	A	2	31	2	31	The term "adaptive management" is mentioned in the Executive Summary (in conjunction with social learning), but not defined or discussed elsewhere in the chapter. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-97	A	2	34	2	36	I think it would be clearer to move the phrase "in many regions" to the start of the sentence. (Michael MacCracken, Climate Institute)	Addressed
17-98	A	2	38	2	40	The aspect of limitation to adaptation in human and natural systems confuses	Addressed

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						<p>ecological adaptation with human induced adaptation. Unless a clear distinction is made between these two uses of the word early on it is likely to lead to ongoing confusion. Linking adaptation in natural systems in the same sentence to human adaptation options will lead readers to believe that evolutionary adaptation is the same as adaptation options as being used in this chapter. By adaptation in a natural system, are you not meaning implying limits to resilience? See my next two comments below.</p> <p>(Graham von Maltitz, CSIR)</p>	
17-99	A	2	39	2	40	<p>deviations in climate from average conditions' suggest changing to a clear statement, like 'changes in mean climate'</p> <p>(Mark Tadross, University of Cape Town)</p>	Addressed
17-100	A	2	43	4	13	<p>Because of limitations of space, the section on concepts and methods should be deleted or drastically reduced. Given what is already known from earlier IPCC publications, definitions can be conveniently left to the Glossary.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-101	A	2	43			<p>17.1.1 This discussion should be more focused on conceptual understanding of adaptation, vulnerability and adaptive capacity and relationships between concepts. This section could indicate that there are differences in conceptual understanding of vulnerability and adaptation (Kelly and Adger 2000). It would be useful to see more discussion of how the terms relate to each other and the implications for adaptation. In particular, the difference between technological type adjustments and adaptation measures that address causes of vulnerability could be highlighted. A couple of examples of actual adaptation would be clarifying to the reader. Perhaps this section should not aim to discuss resilience (resilience only appears in the title).</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed – 17.1 now completely re-written and includes TAR summary and new directions, deletion of methods section etc

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17-102	A	2	43			17.1 An introduction that shows the objectives and structure of the chapter would be a useful guide to the reader and help the chapter attain a clearer argument. (Siri Eriksen, University of Oslo)	Addressed
17-103	A	2	43	4	13	Different states of adaptation with regard to factors such as resilience may also need to be considered. Resilience is not well defined here, and there are a number of different meanings kicking around in the literature. Some of the ecological community looking at complex adaptive systems (e.g. the resilience alliance) have broadened the meaning of resilience from the dictionary meaning of “bouncing back” from a stress or perturbation to any response that maintains a system in a sustainable state. In this construct, resilience can be considered the flipside of vulnerability but when the more traditional meaning is used this is not the case. Therefore, when authors have taken a normative viewpoint and suggested the resilience (positive) be used as an alternative to vulnerability (negative), resilience has to become more than it traditionally is. It also means that resilience overtakes other responses such as resistance, or surrender. This introduces the types of change that adaptation can effect. Adaptations that maintain a system in much the same state can be termed as resilience (and resistance), a further set then become adaptations that produce incremental change and finally, there are transformative adaptations that see an activity change entirely, be substituted by another, or cease to function. Adaptive capacity for each successive state possibly(?) also needs to be more substantial. (Roger Jones, CSIRO)	Addressed
17-104	A	2	43	4	13	definition of key terms: This is an extremely important section of the chapter and in that early stage of production it already reads quite well. It is nicely outlined that adaptive measures are taken by individuals and societies. What I missed a bit is the differentiation of two generally different approaches to adaptation. (1) an individual or society tries to adapt a natural system by management activities (e.g., forest ecosystems) to climate change. This might be possible at selected locations. (2)	Addressed

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						there will be many cases where societies/individuals will have to adapt themselves and adjust to however natural systems adapt to climate change. A usefule reference can be found in Spittlehouse, D., Stewart, R., 2003. Adaptation to climate change in forest management. BC Journal of Ecosystems and Management, Vol. 4(1). (Manfred Lexer, Institute of Silviculture)	
17-105	A	2	43	4	14	This is a good summary of the terminology etc, but it could be presented in a Table or Box set out so that the various definitions could be found more readily. Also the readers should be guided on how these definitions differ, if at all, from those used in the TAR. (Ian Noble, The World Bank)	Addressed
17-106	A	2	45	3		Section 17.1.1; though the emphasis of this chapter is not 'vulnerability', the schedule of events is such that vulnerability& resilience should be fully exhausted prior to treating adaptation. As such I suggest moving lines 27 to 38 on page 3, to line 47 in page 2. (Bernard Edward Gomez, Department of Water Resources)	Addressed
17-107	A	2	45			Section 17.1.1: resilience is not in fact defined here. The section might read more easily if terms were defined in the order vulnerability-resilience-adaptation (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-108	A	2	45	4	13	The term "resilience" is not clearly defined. The chapter implies that it is the opposite of vulnerability (e.g. page 3 line 2), but it might be useful to make clear whether there are nuances to this, following the discussion in the literature over recent years. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed

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17-109	A	2	45	4		In 17.1.1 Key terms: could be useful to include the definition of "coping capacity" ? (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-110	A	2	45	3	49	This paragraph gave more explanation related to adaptation and vulnerability, and less introduction about resilience. So, the description of resilience might be emphasized in this paragraph. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	
17-111	A	2	45	2	45	17.1.1 Key terms: adaptation, vulnerability, resilience (Changed to "and resilience") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-112	A	2	47	3	2	This is a clear explanation of adaptation, but it would be useful to make it clear that this is a fully consistent rephrasing of the definition used in the IPCC TAR. (Ian Noble, The World Bank)	Addressed
17-113	A	2	47			The sentence says that adaptation "takes place through adjustment to enhance resilience or reduce vulnerability", however I believe that many people would find this definition difficult to accept. While adaptation certainly can be an adjustment to reduce vulnerability, and this is a desired outcome of adaptation, an enhancement of resilience may not be understood by all as a positive outcome, and thus not seen as a desirable outcome of adaptation. Consider those who equate resilience with "entrenchment", or see Klein et al (2004) 'Resilience to Natural Hazards: how useful is this concept?' (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-114	A	2	47			I would suggest that the word "Human" come as the first word in the first sentence, so it reads "Human adaptation to climate change" because there will also be ecological adaptations by flora and fauna that will have impacts on humans as well	Addressed

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						(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-115	A	2	49	3	18	If adaptation can occur in ecological and physical systems, it is contradictory to state that it necessarily involves conscious actions (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-116	A	2	49	2	50	Definition of adaptation should include changes in political and economic processes and not only "social and environmental processes" (Maggie Opondo, University of Nairobi)	Addressed
17-117	A	2	49			Why are ecological and physical systems distinct? What is a physical system? Isn't an ecosystem also a physical system? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-118	A	2	49			We run the risk of confusing evolutionary adaptation in ecological systems with human adaptation in the way this is phrased. For the purposes of this chapter should adaptation not be limited to human adaptation strategies. Certainly natural systems can adapt in an evolutionary sense. I am not sure if non-evolutionary responses of a system should be considered as adaptations. Possibly change to "adaptation therefore involves human induced changes to ecological, physical and social systems." (Graham von Maltitz, CSIR)	Addressed – chapter 1 issue
17-119	A	3	0	4		Section 17.1.1 - this section is important but remains very vague; need more examples and specifics to clarify the meaning of different terms. Also presumes that the reader is knowledgeable with the literature or at least the TAR. Is this the right place to add in some of the main messages and new ideas from the TAR on adaptation?	Addressed

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						(Jan Corfee-Morlot, University College London & OECD)	
17-120	A	3	0	2		Add to references: Goklany (1999, 2000, 2003). All references that are not provided explicitly within a comment are provided at the end. (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-121	A	3	1		2	these first two lines appear to be an unnecessary repeat (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-122	A	3	1	4	15	"Section 10.1 Executive Summary Comment: this section fails to mention vulnerability and adaptation" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-123	A	3	4	16		The role of the private sector in delivering adaptation has not been addressed. This includes companies (eg large asset owners) that will need to implement adaptation measures as well as the role of the financial services community in promoting/hindering adaptation. There is a large number of reports addressing the role of the financial services sector on climate change, which has not been addressed at all in this chapter. In developed countries particularly, the private sector will have a huge role to play. The inter-relation between the private sector and governments (eg in terms of regulatory context) will be of prime importance. (Richenda Connell, Acclimatise)	Addressed
17-124	A	3	4	3	7	The relevance of this sentence is not clear and perhaps could be omitted. (Maggie Opondo, University of Nairobi)	Addressed
17-125	A	3	7	3	9	Sentence "Nevertheless..." In fact, it is not just present day "risk" that people are vulnerable to, but the existing climate variability. I don't think that the word "risk"	Addressed

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						adequately captures this concept because actually the variability shouldn't be seen as an additional risk since it is part of every day conditions. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-126	A	3	9	3	16	Perhaps it is the interaction between individual decisions, private sector structural changes, technological development and government regulations that shape actual adaptation (Eriksen, Øyen et al 2005). (Siri Eriksen, University of Oslo)	Addressed
17-127	A	3	12	3	12	I would suggest replacing "in response" by "often in response" to make clear it does not always happen. (Michael MacCracken, Climate Institute)	Addressed in re-write
17-128	A	3	13	3	14	Sentence "Adaptation decision made by..." - saying that these decisions are shaped by the institutional context implies a usage of a very broad definition of institution. It is not necessary to include that word here as the context is described more explicitly in the subsequent sentence. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-129	A	3	13			Could add that adaptation to climate change might increase vulnerability to other stressors (Gina Ziervogel, University of Cape Town)	Addressed
17-130	A	3	16			What is the difference between "capabilities" and "social capital" - aren't these the same? Or isn't social capital part of peoples' capabilities? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-131	A	3	18	3	25	Need to explain the last part of this paragraph with respect to limits to adaptation -	Addressed

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						is it meant to mean that it is impossible to adapt under certain conditions? If so then clarify what these conditions are. Also it would be useful to provide examples to demonstrate the meaning of the terms: " non-linear abrupt change"; "available technologies"; "irreversible large scale change on ecosystems and sustainability" (Jan Corfee-Morlot, University College London & OECD)	
17-132	A	3	18			"All adaptations and conscious and observable": Does this exclude autonomous adaptations, particularly in natural/physical unmanaged systems? The Tar goes into both planned and spontaneous changes in a system to respond to a stimulus or stress and there is still a body of literature on this. (Liza Leclerc, UNEP)	Addressed
17-133	A	3	18			"All adaptation involves conscious and .." - but you have just said that adaptation occurs in ecological and physical systems. I suspect few of these involve conscious action. (Ian Noble, The World Bank)	Addressed
17-134	A	3	18			Wouldn't it be more appropriate to clarify that "All HUMAN adaptation involves conscious and observable actions"? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-135	A	3	18		19	Add "social" before adaptation to differentiate natural adaptation from social adaptation. Natural adaptation occurs without conscious and observable actions. (Shem Wandiga, University of Nairobi)	Addressed
17-136	A	3	18			Does all adaptation involve conscious action? Doesn't Klein distinguish between conscious and other (Gina Ziervogel, University of Cape Town)	Addressed

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17-137	A	3	19	2	21	unclear,elaborate (Frank Sperling, The World Bank)	Addressed
17-138	A	3	21	3	22	I would modify the beginning of the sentence starting on line 21 as follows: "There COULD BE limits to TO THE ABILITY TO RESPOND TO THE IMPACTS OF fundamental non-linear..." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed – now in re-write
17-139	A	3	21		25	add that there are also social, institutional, legal, and economic factors, especially at the local level where many adaptation measures will be carried out, that are delaying or de facto limiting. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-140	A	3	21	3	21	This appears to be a rather short explanation of the term 'resilience' especially given that the title for the section refers to it as a key term. I suggest expanding this explanation. (Mark Tadross, University of Cape Town)	Addressed
17-141	A	3	21			adapt in the future' - to all stresses or to climate-related stresses? (Gina Ziervogel, University of Cape Town)	Addressed
17-142	A	3	22			If the phrase "fundamental non-linear abrupt changes in the earth system" is to be kept, it needs to be further explained, or an example should be provided as it is unclear what it refers to. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-143	A	3	24			Clarify what's meant by "legitimacy"? Seems like a subjective value judgement.	Addressed

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						(Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-144	A	3	27	3	28	"ability to respond" is part of a definition of resilience, not vulnerability (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-145	A	3	27	3	32	This entire section is a bit confused. The two first sentences both attempt to define vulnerability, and both omit to mention the relationship between vulnerability and risk. In addition, vulnerability does depend on adaptive capacity, sensitivity, and exposure to the impacts of cc, but those are all functions of distribution of resources and prior stresses too, so there is no need to mention these separately. Furthermore, the list could go on for pages, so there is no justification for highlighting distribution of resources and prior stresses over other factors, such as social status, gender, etc. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-146	A	3	27		32	Paragraph reads in note form. Needs adjustments to text. (David Thomas, University of Oxford)	Addressed
17-147	A	3	28			Disagree that vulnerability refers to "ability to respond to stresses imposed as a result of cc impacts" - vulnerability cannot refer to an ability as vulnerability is the state of being susceptible to impacts, which is completely different. Thus the first part of the definition does not match well with the second part as proposed here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-148	A	3	28	3	32	repetitive, clouds message (Frank Sperling, The World Bank)	Addressed
17-149	A	3	29	43	49	It seems to me this is a special challenge for next years; most of actual responses are designed as a simples extension of usual (or known) practices "limited" to answer to	Addressed

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						climate variability. That sentence should be enhanced and more detailed. (Silvio Rocha Sant'Ana, Fundação Grupo Esquel)	
17-150	A	3	30	3	31	This discussion of the concept of vulnerability could be elaborated. For example, vulnerability can be seen as an inherent state (for example of poor ability to secure well being), created by stressors and drivers, such as economic marginalisation. Vulnerable populations can therefore be in a state of suffering harm or lack of well being even before climatic change takes place. (Siri Eriksen, University of Oslo)	Addressed – but shortened
17-151	A	3	30	3	32	Isn't "distribution of resources" included in adaptive capacity? (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-152	A	3	30	3	30	Does vulnerability depend on current and future adaptive capacity or just current? (Gina Ziervogel, University of Cape Town)	Addressed
17-153	A	3	31	3	32	O'Brien et al, 2004 cited twice, should be (a) and (b)? (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-154	A	3	32		32	some authors (e.g., Luers, 2005 in Global Environmental Change) view these other stresses and resource distribution disparities as determining sensitivity and adaptive capacity (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-155	A	3	32			The text "it also depends on the distribution of resources and prior stressors" detract from the discussion in my mind, since distribution of resources is actually captured within the concept adaptive capacity, just as prior stressors are captured by the concept of sensitivity.	Addressed

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						(Erika Spanger-Siegfried, Union of Concerned Scientists)	
17-156	A	3	34		38	Could also cite Root et al 2001 (same volume as Parmesan & Yohe) - similar findings with different method/data that substantiate this point. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-157	A	3	34	3	38	For this chapter a social/human example will be better to use to explain the concept of Sensitivity (Pauline Dube, University of Botswana)	Addressed
17-158	A	3	34	3	34	I would suggest replacing "is" by "refers to" (Michael MacCracken, Climate Institute)	Addressed
17-159	A	3	34		38	Exposure, too, can be influenced by adaptation (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-160	A	3	34			Is 'exposure' the impacts or is it a factor in determining the risk of suffering the impacts? If I build my house in San Francisco I am exposed to large earthquakes even if the big one has not occurred yet. I don't really care how the terms are defined so long as they are well defined and used consistently. I suggest that we stick with the Smit et al usage in the TAR unless there is some urgent need to change them. (Ian Noble, The World Bank)	Addressed
17-161	A	3	34	3	35	This section could relate exposure to vulnerability, because otherwise there will be confusion between these two concepts. In fact, you mention that Exposure can be modified by adaptation, but this is also the case with vulnerability, as has been mentioned twice already so far in the chapter. Clearly, exposure only needs to be modified if there is high vulnerability, so ultimately the most important variability	Addressed

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						is still vulnerability. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-162	A	3	34	3	35	This sentence is not easy to understand. (Gina Ziervogel, University of Cape Town)	Addressed
17-163	A	3	40	3	43	Adapative capacity is also related to strucural elements in an economy, not just resource endowments, for example the substitutability of inputs and outputs. (John Macintosh Callaway, Forskningscentre RISØ)	Addressed
17-164	A	3	40		49	Sugggestion that poor & marginalised are most at risk from climate shocks needs some clarification that this could occur in rich as well as poor countries (eg. US - vulnerability to H.Katrina demonstrated the depth of poor and marginal urban population there). Notion of social capital could be introduced here. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-165	A	3	40	3	40	I would prefer having "changes in climate" to "climate changes" as we typically are using "climate change" to mean the whole set of changes due to human activities. (Michael MacCracken, Climate Institute)	Addressed
17-166	A	3	40	3	44	This is VERY WELL defined! Finally a good way to describe adaptive capacity. Well done. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-167	A	3	40			Relating to the above. Should this not be limited to human or social systems to give a clear distinction from evolutionary adaptation in ecological systems. (Graham von Maltitz, CSIR)	Addressed

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
17-168	A	3	42	3	42	tidy up definition: use of the term "vector" is unnecessarily confusing and "resource(s)" is repeated (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-169	A	3	42			Suggest sharpening this sentence, perhaps along the lines of: "Adaptive capacity represents the level of resources, assets and skills that can be drawn on to...." (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-170	A	3	42			vector or resources'...: not clear what this means. (David Thomas, University of Oxford)	Addressed
17-171	A	3	43	3	44	I believe that coping and adaptation should be distinguished, and coping defined properly here (Eriksen, Brown et al 2005; Davies 1993). (Siri Eriksen, University of Oslo)	Addressed
17-172	A	3	43			examples of adaptive capacity are largely missing (C. Gregory Knight, Pennsylvania State University)	Addressed
17-173	A	3	43	3	44	I would suggest revising to read "and adapt to the present level and range of climate variability" to make clear that variability can occur in multiple ways. (Michael MacCracken, Climate Institute)	Addressed
17-174	A	3	43			Brooks and Adger (2005) Assessing and Enhancing Adaptive Capacity... (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-175	A	3	44	3	47	Presumably, by "resources", the authors mean an array of physical, financial, natural, social assets. Without some clarification, though, it reads as though	Addressed

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						resources means money, materials and technology, which is an inadequate framing. (Erika Spanger-Siegfried, Union of Concerned Scientists)	
17-176	A	3	47	3	49	Morrow (1999) demonstrates vulnerability in an industrialised country context. (Siri Eriksen, University of Oslo)	Addressed
17-177	A	3	47	3	49	It really needs to be made clearer here that this is a conclusion most relevant to historic levels of change. When the world starts getting to new levels of change (in climate and in sea level), the developed nations are also going to have a very difficult time--especially given how much infrastructure the developed nations have at risk of sea level rise, storm surges, more severe tropical cyclones, etc. We are all going to be in a very risky situation. (Michael MacCracken, Climate Institute)	Addressed
17-178	A	3	47	3	49	"Many comparative studies" is indicated at the beginning of the sentence then only one (Turner et al., 2003) is mentioned, which are the other comparative studies? (Maggie Opondo, University of Nairobi)	Addressed
17-179	A	3	47	3	48	I suggest adding 'adaptive capacity can lie latent, intervening institutions constraining translating from adaptive capacity into adaptive action.' (Mark Pelling, King's College London)	Addressed
17-180	A	3	47	4	49	On the institutional level it has been well recognized that climate change threatens the sustainability of efforts aimed at alleviating poverty, given that the poor are particularly vulnerable to current climatic shocks and likely to suffer the most from the adverse consequences of climate change, (e.g. 10-agency document "Poverty and Climate Change") and there is an increasing emphasis on the need for adaptation.	Addressed

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						(Frank Sperling, The World Bank)	
17-181	A	4	0			Notion of decisionmaking assessments and planning methods - where vulnerability is a dynamic concept. Explain what processes drive vulnerability to climate change and to whether these vary widely by local context e.g. globalisation? Economic livelihood profiles? Social and political networks? Technology? (Jan Corfee-Morlot, University College London & OECD)	Addressed – now in 17.4
17-182	A	4	1		13	Adaptive capacity can also be influenced by actually realized adaptation (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-183	A	4	1			1st sentence very clumsy (David Thomas, University of Oxford)	Addressed
17-184	A	4	7	4	7	It is not clear to me that there are really options of "where" adaptation interventions can take place--can the place really be other than where the impact is? (Michael MacCracken, Climate Institute)	Addressed
17-185	A	4	8		9	The sentence 'A prior question...' It is not clear what this means, but could it be a rehtorical questions? (David Thomas, University of Oxford)	Addressed
17-186	A	4	10	4	12	If possible, add detail to study of Leichenko and O'Brien, which illustrates the statement. (Frank Sperling, The World Bank)	Addressed
17-187	A	4	12	4	13	Sentence "...human response to cc risks is uneven..." - while I agree with your comment that vulnerability will not be eradicated by adaptation, it seems to go	Addressed

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						<p>against what you have said in your opening paragraph slightly in that you say that adaptation takes place to reduce vulnerability. Your comment here, however, indicates that while the goal may be to reduce vulnerability, the outcome may not be so, and I think the initial sentence on page 2 should be adjusted to be more in line with this sentence on page 4.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	
17-188	A	4	13		13	<p>"despite adaptation" or maybe even because of the negative side effects of adaptation measures taken...</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed
17-189	A	4	15	7	13	<p>IPCC AND BASIC RESEARCH: The authors should consider changing the focus in this section to assessment rather than research. This follows from the often repeated statement that the IPCC is not concerned with research.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-190	A	4	15	7	13	<p>Many of the methods discussed here deal with adaptation as well as other intervention mechanisms. The authors should check for overlaps with other assessment chapters. There may be room for gaining precious space.</p> <p>(Jurgen Schmandt, Houston Advanced Research Center)</p>	Addressed
17-191	A	4	15			<p>Section 17.1.2 - No explanatory text has been provided about the 5th question in Table 17.1</p> <p>(Upasna Sharma, Indian Institute of Technology, Bombay)</p>	Addressed – table now deleted
17-192	A	4	15	7		<p>In 17.1.2: No comments or reference in the text in relation to question 5 in Table 17.1</p> <p>(María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))</p>	Addressed

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
17-193	A	4	15	4	15	17.1.2 Method used to analyze adaptation.(omit .) (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-194	A	4	17	4	18	It is not clear from the text by what criteria these questions are selected. An elaboration would be useful (for example, are they the most commonly researched questions since the TAR, and/or are they deemed important for other reasons?) (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-195	A	4	17	7	13	The concept of vulnerability needs to be squarely framed at the outset of this discussion, since the majority of approaches used to assess adaptation do so by responding in some way to an understanding of vulnerability. (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-196	A	4	23	4	26	This phrase assumes that impacts research serves the ultimate aim of the UNFCCC. It also assumes that political action follows from scientific research, and that political action always supports the UNFCCC. These three assumptions are dead wrong. (Richard S.J. Tol, Uni. Hamburg)	Addressed
17-197	A	4	24			define GHG (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-198	A	4	25	4	25	What does "found" mean in this context? (Michael MacCracken, Climate Institute)	Addressed
17-199	A	4	26	4	29	The sentence starting "One the other hand" - needs to be rewritten because it is rambling and unclear, and what is the "other hand" supposed to oppose? Some	Addressed

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						words seem to be missing here. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-200	A	4	26			Rephrase sentence 'on the other hand...' (David Thomas, University of Oxford)	Addressed
17-201	A	4	28	4	28	I would think this was meant to read "measures that are appropriate for reducing the causes" (Michael MacCracken, Climate Institute)	Addressed
17-202	A	4	28	4	28	check sentence; ...of adaptation measures those are appropriate...maybe should read ...of THOSE adaptation measures WHICH are appropriate... (Frank Sperling, The World Bank)	Addressed
17-203	A	4	31			The section 17.1.2. places heavy emphasis on modelling studies for assessing the effects of adaptation measures on climate change impacts, but also notes the limitation of such approaches as they often do not capture local barriers to the implementation of specific activities. It would be beneficial to juxtapose this paragraph with a paragraph exploring the lessons learned from measures aimed at reducing the risk of hydro-meteorological disasters. Community level studies also provide insights on the non-market effects of climate shocks, which are illustrative for informing adaptation efforts. This section as well as the (worthwhile) guiding questions are not well connected to the rest of the chapter. The framework is insufficiently elaborated and too abstract. SUGGESTION: Delete entire section and incorporate relevant elements into other sections of the chapter, strengthening the link between abstract conceptual discussions on adaptation and the application focused discussions on subsequent sections. (Frank Sperling, The World Bank)	Addressed

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17-204	A	4	32	4	32	I would suggest changing "uses" to "relies on" to make it clear that humans actually do the interpretation and application. (Michael MacCracken, Climate Institute)	Addressed
17-205	A	4	35			Insert 'then' between that and estimate. (David Thomas, University of Oxford)	Addressed
17-206	A	4	36	4	36	I would suggest saying "those treating biophysical processes" (Michael MacCracken, Climate Institute)	Addressed
17-207	A	4	37	45	45	include the reference (Silvio Rocha Sant'Ana, Fundação Grupo Esquel)	Addressed
17-208	A	4	39	2	39	include the reference (Silvio Rocha Sant'Ana, Fundação Grupo Esquel)	Addressed
17-209	A	4	40	5	40	include reference on CDM bibliographical references (Silvio Rocha Sant'Ana, Fundação Grupo Esquel)	Addressed
17-210	A	4	45		46	Editorial: is a limited proxy ... because it ignores... (C. Gregory Knight, Pennsylvania State University)	Addressed
17-211	A	4	45	4	45	It would be a bit clearer to say "But comparative values of GDP per capita are limited ..." (Michael MacCracken, Climate Institute)	Addressed

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17-212	A	4	45	4	45	"GDP per capita, are limited proxies": either other indicators have been omitted or there is a problem with sentence construction (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-213	A	4	45			GDP per capita IS a limited proxy.. (David Thomas, University of Oxford)	Addressed
17-214	A	4	45			All proxies are limited. The goal is not to complain about what others are doing, but to do things better. (Richard S.J. Tol, Uni. Hamburg)	Addressed
17-215	A	4	47			In addition, GDP per capita ignores other determinants of adaptive capacity (e.g., human and social capital, technological prowess) that may be related to -- but are separate from -- GDP per capita (Goklany 1999a, 2005b)." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-216	A	5	0	5	3	The examples in column 3 are given in terms of the literature source. The examples ought to be given in terms of the cases studied. This exercise is not just literature review. Literature should be cited in support of the relevant data or findings. The source should not be given greater prominence than the contents. This tends to elongate the list of literature cited. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-217	A	5	0	5	3	Table 17.1: The question: "what are the effects of adaptation on climate change?" is not reasonable. Mitigation can have effect on climate change, adaptation cannot. (James Adejuwon, Obafeme Awolowo University)	Addressed

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17-218	A	5	0	5	3	<p>AGAIN TABLE 17.1: The authors should seriously consider whether or not Column 1 should be made to ask questions. Questions are meant to be answered. These particular questions were not answered anywhere in the chapter. In column 2 we have methods used. Methods used to do what? Accepted “modelling” is a “method used”. But it is not used to answer the question “what are the effects of ...?” It is used to assess the effects of adaptation. In other words column 1 should not be in the form of questions but in the form of adaptation measures. Take the 3rd question “What constitutes the capacity to adapt?” Method used: “Modelling studies of specific hypothesised components”. Is this an answer to the question?</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-219	A	5	0	5	3	<p>"UNCERTAINTY" IN CLIMATE CHANGE LITERATURE: “Uncertainty surrounding causality in constructivist and inductive research methods” is a general problem in all fields of science. I wish very much we do not introduce this as anything new in the assessments of adaptation or vulnerability. My understanding is that the peculiar uncertainty in the context of the IPCC exercises derives from inability to predict the future course of climate change. We should not dilute this with the other general problems of determinism.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-220	A	5	1			<p>Table 17.1. For Q1 "What are the effects of adaptation on climate change impacts?" historical records have often been used, extrapolating from them climate change scenarios. For example, impacts of ENSO on floods, compounded by projected increases in precipitation.</p> <p>(Sofia Bettencourt, The World Bank)</p>	Addressed
17-221	A	5	1			<p>Table 17.1 Suggest adding here cost-benefit analysis and cost-effectiveness, to assess the economic benefits of adaptation and impacts of climate change on various sectors. This could then be expanded on section 17.2.4.1</p>	Addressed

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						(Sofia Bettencourt, The World Bank)	
17-222	A	5	1			<p>Table 17.1 I am not certain that this table represents a concensus among adaptation researchers. In particular, the politics of adaptation, how does adaptation form part of political processes, and who wins and who loses from adaptation are important questions not asked in the table. How does adaptation take place, and what are barriers to adaptation are other critical questions. It is not clear to me that the list of relevant methods for each question is exhaustive. Perhaps it is not easy to make such a distinction that assigns methods to different questions. Very few qualitative methods appear to be described here. Anthropological and sociological methods under q4 probably include many different types of methods, which should not be confined to only q4. Case study analysis is critical in adaptation research and should be mentioned specifically, but there are other qualitative methods that merit mentioning, too.</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed
17-223	A	5	1			<p>Comment on Table 17.1: [1] 2nd row, 3rd column: add to list of references: Goklany (1995, 2000, 2003, 2005). [2] 3rd row, 3rd column: additional references: Goklany (1995, 1999a, 2005b)</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	Addressed
17-224	A	5	1			<p>The examples should be substatiuve examples with footnotes, not just a bibliography list</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	Addressed
17-225	A	5	1	5		<p>Table 17.1 is well done and very useful.</p> <p>(Manfred Lexer, Institute of Silviculture)</p>	Addressed – deleted nontheless
17-226	A	5	1			<p>Table 17.1: repetition of "aggregation/aggregate"</p>	Addressed

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						(John Morton, Natural Resources Institute, University of Greenwich)	
17-227	A	5	1	5		<p>Table 17.1 -- this seems like a limiting set of key research questions. No key research question on the acceptability and feasibility limits of adaptation? Q3 - methods used should also list case study approaches and other qualitative research by social scientists; Q5 - methods used should also list qualitative social science approaches, e.g., to examine political context, socio-economic context. Furthermore, the text should include a discussion of what ways in which the methods limit what we know (which then gives you material to feed into the yet-to-write future research priority section.</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed
17-228	A	5	1	5	2	<p>Table 17:1 This is an interesting table and the questions are a good device for furthering the discussion but the text doesn't make its origins clear. I presume that the questions were generated by the writing team. Please outline the criteria for selecting the key questions. What is the logic of the order of these questions? I know that there can be many different orders but I do not follow this one. As a suggestion how about Q3 (capacity); Q4 (experience); Q5 (selecting what will be done); Q2 (how effective) and Q1 (cost effectiveness).</p> <p>(Ian Noble, The World Bank)</p>	Addressed
17-229	A	5	1	5	2	<p>Table 17.1 Q2 - Should it be called 'adaptation' if the consequences are not socially and environmentally beneficial. Isn't that the goal of adaptation. Maybe the question could be refined to "Which (adaptive) responses may have negative social and/or environmental consequences?" I do not understand how the APF is an example of this.</p> <p>(Ian Noble, The World Bank)</p>	Addressed
17-230	A	5	1	5	2	<p>Table 17 Q3 - Is the question about what is "likely to be used" or what "should be used". Both are relevant but I suspect the two issues are mixed here.</p>	Addressed

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						(Ian Noble, The World Bank)	
17-231	A	5	1			<p>Table 17.1 (Row 1 Column 3) - need to mention some of the numerous examples referred to. In methodology column in this table "Integrated Impact Assessments (IIAs)" using both quantitative and qualitative approaches need to be included for Q2, Q3 and Q4. More information on IIAs can be found in WHO Regional Office for Europe.: 2003, Methods for Assessing Human Health Vulnerability and Public Health Adaptation to Climate Change, (Health and Global Environmental Change Series No. 1), Copenhagen, WHO Regional Office for Europe.</p> <p>(Maggie Opondo, University of Nairobi)</p>	Addressed
17-232	A	5	1			<p>TABLE 17.1 third column, second cell, delete others or give a reference</p> <p>(Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)</p>	Addressed
17-233	A	5	1			<p>"Table 17.1" It might be useful to add another row to the table with the 6th key research question on adaptation - "What adaptations are being used currently?" The current adaptations and the baseline adaptive capacity has been coupled with question 3 on the determinants of adaptive capacity. It might be useful to separate them.</p> <p>(Upasna Sharma, Indian Institute of Technology, Bombay)</p>	Addressed
17-234	A	5	1			<p>Assuming you will receive lots of feedback on this table, I'll reserve my comments to the following: (1) a key research question that Lim et al. (2005) attempted to address was how, from the enormous array of adaptation needs, priorities could be established. This question is important for many reasons, but the one I'd point out from a human welfare perspective is that urgent vulnerability and adaptation needs exist, from the national to the local scale; identifying and prioritizing these is an important undertaking, but one around which much uncertainty exists. This undertaking was of course a centerpiece of the NAPA processes, and as such revealed the shortlist (and shortcomings) of existing methods. Coverage from the</p>	Addressed

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						vulnerability perspective in Chapter 19 need not preclude mention here. (2) a smaller point is that, as currently structured, questions 1 and 5 read as though they are part of the same question -- if not THE same question (since clarifying the effect of adaptations on climate impacts identifies which adaptations to use). If each question has value in its own right, perhaps it would be useful to clarify the distinction between the two. (Erika Spanger-Siegfried, Union of Concerned Scientists)	
17-235	A	5	1			table 17.1, 1st row, 3rd column. Example references are missing (Mark Tadross, University of Cape Town)	Addressed
17-236	A	5	1			TABLE 17.1. This is quite a selective list of questions! Q2 is presented iona rather one-sided way, and would be much better if framed as 'What are the effects of adaopttaion on societies and envrionments?' (David Thomas, University of Oxford)	Addressed
17-237	A	5	1	5	2	Table 17.1. No references for examples in Q1 although it is stated "Numerous examples....." (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-238	A	5	1			Table 17.1. Q4, How does society learn to adapt? Example - could add Bharwani et al (in press). Bharwani, S., Bithell, M., Downing, T.E., New, M., Washington, R and Ziervogel, G. (2005). Multi-agent modelling of climate outlooks and food security on a community garden scheme in Limpopo, South Africa. Philosophical Transactions of the Royal Society B. 360 (1463). 2183 - 2194 (Gina Ziervogel, University of Cape Town)	Addressed
17-239	A	5	4	5	16	The discussion of uncertainty is not very clear here. Does uncertainty only relate to	Addressed

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						impact studies? (Siri Eriksen, University of Oslo)	
17-240	A	5	5			models, assumptions ... adaptation, and future climate... (editorial) (C. Gregory Knight, Pennsylvania State University)	Addressed
17-241	A	5	5	5	6	Would read better saying "assumptions on the level of expected adaptation, and the results of climate scenarios generated with climate models." (Michael MacCracken, Climate Institute)	Addressed
17-242	A	5	6			For managing uncertainty' should read' For the explicit managemnet of uncertainty' (David Thomas, University of Oxford)	Addressed
17-243	A	5	8			assessment models differ (editorial tense) (C. Gregory Knight, Pennsylvania State University)	Addressed
17-244	A	5	8	5	8	It would read better saying "The level of confidence that can be placed in the results of assessment models differs ..." --I don't understand what "establishment" means here. (Michael MacCracken, Climate Institute)	Addressed
17-245	A	5	8	5	9	This sentence is clumsy and hard to understand. Consider rewriting (Mark Tadross, University of Cape Town)	Addressed
17-246	A	5	9	5	9	I would suggest changing "others" to "other factors" (Michael MacCracken, Climate Institute)	Addressed

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17-247	A	5	9	5	12	Following sentence is also confusing. Which of these reasons are referring to bio-physical and which to sociological models ? (Mark Tadross, University of Cape Town)	Addressed
17-248	A	5	12	5	12	I would suggest changing "in social systems" to "based on experience with social systems" (Michael MacCracken, Climate Institute)	Addressed
17-249	A	5	15	5	16	relative benefits of various adaptation options' needs further explanation. The use of a model suggests that quantitative results are available which in theory should provide this information. (Mark Tadross, University of Cape Town)	Addressed
17-250	A	5	18	5	21	Authors might benefit from the AIACC adaptation synthesis work (Pauline Dube, University of Botswana)	Addressed
17-251	A	5	18	6	12	This is a good discussion but it appears to be dealing with a wider question than posed in the table. It is asking whether progress in adaptation can be measured and whether "efficient" adaptive actions can be identified. This is far wider than Q2 as phrased. (Ian Noble, The World Bank)	Addressed
17-252	A	5	20	5	20	I would suggest changing "benefit" to "the relative benefits" (Michael MacCracken, Climate Institute)	Addressed
17-253	A	5	22	5	24	I would suggest changing this to read "well established and lead to development of consensus analyses, confidence level depends on the quality and quantity of the	Addressed

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						information that is available, which can vary across region and sector." (Michael MacCracken, Climate Institute)	
17-254	A	5	27	5	32	"section 10.1.2 Comment: this paragraph does not directly related to WGII, delete the paragraph" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-255	A	5	30	5	33	What does "It" refer to? This sentence is quite opaque--please simplify it. (Michael MacCracken, Climate Institute)	Addressed
17-256	A	5	33	5	33	For clarity, change to read "strategies that were taken to cope with periods ..."-- drop the "two" as this might imply there were two periods in each of these intervals. (Michael MacCracken, Climate Institute)	Addressed
17-257	A	5	36	5	36	Change "It" to "This study" (Michael MacCracken, Climate Institute)	Addressed
17-258	A	5	40	5	40	Change to say "relative quantitative importance of the determinants" (Michael MacCracken, Climate Institute)	Addressed
17-259	A	5	42	7	12	"section10.2.1 comment: this section may has already in TAR, do we still need it here?" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-260	A	5	46	5	46	I would think one would want to have this sentence be in the plural to make sure that no one thinks there is only one right and satisfactory adaptation strategy--we	Addressed

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						will need a lot of them. (Michael MacCracken, Climate Institute)	
17-261	A	5		5	3	TABLE 17.1, How were these questions generated? One can not easily discern the purpose or purposes they are designed to serve. They could be useful if for example they have been generated from the expressed needs for adaptation or such common purpose. There is no logic or framework binding them together. Questions could be formulated to provide an outline for the rest of the paper; or as a way of stating the objectives of the chapter. However, not much, if anything else is heard about these questions beyond section 17.1.2. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-262	A	6	1		12	This paragraph does not discuss any potential negative impacts of adaptation measurs (e.g., we could build seawalls around the entire coastline, but what would that mean ecologically, economically?) (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-263	A	6	1		3	This is a key message missing from the executive summary (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-264	A	6	2	6		Is not the term 'social acceptability' less strong an indicator for success than 'social readiness'. Acceptability may be difficult to measure and therefore misleading. (Bernard Edward Gomez, Department of Water Resources)	Addressed
17-265	A	6	4			Add to the list of references: [1] Dang, H.H., Michaelowa, A. and Tuan, D.D.: 2003, 'Synergy of adaptation and mitigation strategies in the context of sustainable development: the case of Vietnam', Climate Policy 3S1, S81–S96. [2] Goklany (2005b).	Addressed

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						(Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-266	A	6	4	6	6	Extend discussion to cover the use of other capitals (natural; human; physical; socio-cultural) in the assessment of efficiency. (Bernard Edward Gomez, Department of Water Resources)	Addressed
17-267	A	6	6	6	8	Sentence about equity and distributional consequences of environmental decisions is very unclear. Please rephrase. (Bonizella Biagini, Global Environment Facility)	Addressed
17-268	A	6	6	6	7	There is a growing literature describing evidence of and methodologies to measure the economic benefits to investing in natural disaster risk reduction when compared to disaster losses. For examples see DFID (2004) Disaster Risk Reduction: a development concern, DFID p 33 (Mark Pelling, King's College London)	Addressed
17-269	A	6	6	6	6	what is 'externality' referring to ? (Mark Tadross, University of Cape Town)	Addressed
17-270	A	6	7			Word "spatial" could instead be "geographical" (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-271	A	6	8	6	9	"For adaptation, the ...policy decision". Does it hold true for micro-level adaptation (say, at household level or at the level of an individual's adaptation)? Of course, even at micro-level adaptation, there suppose to be cost-benefit assessments done prior to decision making in favour of adaptation. However, the creation of 'losers' and 'winners/gainers' in generic terms should not ideally be considered first for adaptation.	Addressed

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						(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-272	A	6	12	6	12	is an important characteristic'. Perhaps expand this sentence to briefly say why it is important. At the moment the sentence leaves the reader wondering why. (Mark Tadross, University of Cape Town)	Addressed
17-273	A	6	14	6	24	I am not certain what of value to the readers is being said in the first and last sentences of this paragraph. (Ian Noble, The World Bank)	Addressed
17-274	A	6	14	6	18	Could also include participatory methods as one of the methods that could be used to decide which adaptation options are socially beneficial. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-275	A	6	16		24	Not clear what "area" is being referred to here. Is it social acceptability of adaptation options? (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-276	A	6	16	6	16	in this area'. Unclear which area ? (Mark Tadross, University of Cape Town)	Addressed
17-277	A	6	16	6	18	Game Theory also shows the power in analyzing interaction among actors in adaptation practices such as flood hazard alleviation (Zhao, 2002) (Yong Zhao, China Huaneng Technical Economics Research Institute)	Addressed
17-278	A	6	18			Add to references here: Goklany (1999a, 2005b); Tol, R.S.J. and Dowlatabadi, H.: 2001, 'Vector borne diseases, development & climate change', Integrated Assessment 2, 173-181.	Addressed

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						(Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-279	A	6	20			criteria, and insufficient (C. Gregory Knight, Pennsylvania State University)	Addressed
17-280	A	6	22		24	Sentence needs rewriting, esp. unclear what is meant by "obtained the consensus" ... and I am not convinced there is a consensus about methods of assessment achieving consensus status in the community (C. Gregory Knight, Pennsylvania State University)	Addressed
17-281	A	6	22	6	24	Sentence starting "Although the methods" seems odd - what is "the methods...have...obtained the consensus" mean? Which consensus? And "information" is used as a plural - check grammar rules - does this work? And what does "focused regions" mean? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-282	A	6	22	6	22	I am not sure what 'obtained the consensus' means (Mark Tadross, University of Cape Town)	Addressed
17-283	A	6	24		24	what are "focused regions"? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-284	A	6	26	43		Chapter 4 (on adaptation) of the UKCIP report 'Measuring progress: Preparing for impacts through the UK Climate Impacts Programme' (West and Gawith, 2005) provides an analysis of progress on adaptation in the UK. This can be obtained from the UKCIP website (www.ukcip.org.uk) (Richenda Connell, Acclimatise)	Addressed

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17-285	A	6	26	6	43	This entire paragraph needs to be looked at carefully in terms of language as there are numerous grammatical errors. I suspect it has been contributed by someone who does not have English as a first language but if it is not improved readers will struggle to understand the points made. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-286	A	6	27			Can you provide references of meta-analysis techniques? (Gina Ziervogel, University of Cape Town)	Addressed
17-287	A	6	28		36	language not clear here (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-288	A	6	30			hampered adaptation (delete practising) (C. Gregory Knight, Pennsylvania State University)	Addressed
17-289	A	6	30			adaptations (plural) (C. Gregory Knight, Pennsylvania State University)	Addressed
17-290	A	6	30		30	after "hampered practicing adaptation" could cite forthcoming article (in press) by Moser. Reference: Moser, Susanne (2005). "Impacts Assessments and Policy Responses to Sea-Level Rise in Three U.S. States: An Exploration of Human Dimension Uncertainties." Global Environmental Change, in press. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-291	A	6	30			Language needs fixing: "opportunities by which adaptation HAS been taking place" and "limitations THAT HAMPER THE IMPLEMENTATION OF adaptation"	Addressed

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						(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-292	A	6	30			Adaptation HAS (Gina Ziervogel, University of Cape Town)	Addressed
17-293	A	6	33			surveyed strategies' used 'to cope' (Gina Ziervogel, University of Cape Town)	Addressed
17-294	A	6	35			Language - "compared them with considering" does not make sense (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-295	A	6	36	6	38	The reader is told that there was a study and results were gathered. But what were they? (Ian Noble, The World Bank)	Addressed
17-296	A	6	38	6	39	There are no exemplars in the report on urban governance. Given that urbanisation is a key dynamic pressure shaping vulnerabilities, exploring the role of urban governance should be given greater visibility in this chapter. If this is agreed then it might be useful to add here 'Pelling (2003) has argued for the fundamental roles of social assets and framing governance structures in shaping determinants for individual and local collective adaptive capacity to hydrometeorological extreme events in urban settlements with evidence from Georgetown, Guyana, Bridgetown, Barbados and Santo Domingo, the Dominican Republic'. Ref is Pelling M (2003) The Vulnerability of Cities: natural disaster and social resilience, Earthscan, London (Mark Pelling, King's College London)	Addressed
17-297	A	6	38	6	43	These last 2 sentences do not flow well. I suggest rewriting them	Addressed

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						(Mark Tadross, University of Cape Town)	
17-298	A	6	39		41	This sentence refers to a different set of studies - it needs fuller explanation to understand their significance (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-299	A	6	39			Disagree with use of term "natural disasters" - please use either natural hazards OR disasters, but do not contribute to breaking down the work that the ISDR is doing to ensure that the misnomer "natural disaster" disappears!! (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-300	A	6	45	7	13	The paragraph about learning in adaptation includes several correct statements, however it does not mention the existence of indicators to monitor and evaluate progress and results. Please: 1. mention indicators in this section to strengthen its content; and 2. if indicators are described in other sections of this report, include reference. (Bonizella Biagini, Global Environment Facility)	Addressed
17-301	A	6	45	7	13	In this discussion of learning and adaptation. This discussion borders on endorsement of a purely technocratic approach and does not raise questions or issues about the inevitable deliberative, recursive nature of decisionmaking on risk. It would be useful to introduce here ideas on the functions of deliberation in risk characterisation (comprising both assessment and management functions) in consultation with expert and non-expert stakeholders in an interactive "learning" process. There is a large environmental and more generally risk focused literature on this; though little of it is focused on climate change - it might be worth mentioning some of the main ideas -- (Adams and Thompson 2002; Jones 2001; Krimsky and Golding 1992; Otway and Thomas 1982; Renn 2001; Willows and Connell 2003) For a more practical piece focused on climate change & adaptation see Willows & Connel.	Addressed

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						(Jan Corfee-Morlot, University College London & OECD)	
17-302	A	6	45	7	13	I am sure that most readers will know what the purpose of monitoring etc is. But what has been learned about how decisions about adaptation are made. If nothing has been learned then say so. (Ian Noble, The World Bank)	Addressed
17-303	A	6	46			The choice of adaptation strategy is also determined by the decision-maker's attitude to climate risks and to the risks of over- or under-adapting. See Willow and Connell, 2003, p. 56-58 (Richenda Connell, Acclimatise)	Addressed
17-304	A	6	46			Modify "changes" to "can change". (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-305	A	6	49		50	add: as well as current political, legal, economic, and technological constraints on decision-making (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-306	A	6	49	6	50	Bayes' Theorem is applied to describe the nature that people change their estimation on flood probability with occurrence of floods, which provides explanations for the actual difficulties encountered in the process of American National Flood Insurance Program (Zhao, 2002). (Yong Zhao, China Huaneng Technical Economics Research Institute)	Addressed
17-307	A	6	50	7	2	This sentence can be omitted as its contents are repeated in the next sentences. (Maggie Opondo, University of Nairobi)	Addressed

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17-308	A	6	50	6	51	<p>Research on the tensions between making organisations (especially public sector organisations) 'adaptive' in the face of climate change is just beginning but it can be said that 'establishing space for social learning to enable adaptation of organisations to climate change is in tension with existing imperatives of transparency, efficiency and effectiveness. Ref: Pelling, M., High, C., Dearing, J., Smith, D (2005) Social learning and adaptive capacity: surfacing the relational spaces of adaptation to climate change in organisations, Environment and Planning A (in press)</p> <p>(Mark Pelling, King's College London)</p>	Addressed
17-309	A	7	1		13	<p>It seems strange to me that this entire paragraph makes absolutely no reference to adaptive management, and to the fact that the monitoring part is often not funded and/or done</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed
17-310	A	7	5	7	5	<p>I would suggest starting a new paragraph with "Evaluation"</p> <p>(Michael MacCracken, Climate Institute)</p>	Addressed
17-311	A	7	7	7	10	<p>Point (a) refers to "us" and "their" and point (b) refers to "their" - needs to be the same, or else explain who "they" are.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-312	A	7	7	7	7	<p>objectiveness' not sure I like this word if it exists, would prefer 'stated objectives'</p> <p>(Mark Tadross, University of Cape Town)</p>	Addressed
17-313	A	7	9	7	10	<p>I would suggest deleting "their" and "from the start"</p> <p>(Michael MacCracken, Climate Institute)</p>	Addressed

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17-314	A	7	11	7	12	I would suggest rewording to say "Evaluation done without quality data from effective societal and environmental monitoring processes will serve little purpose and provide no basis for confidence in drawing conclusions." (Michael MacCracken, Climate Institute)	Addressed
17-315	A	7	11	7	13	These two sentences are not clear in what the authors are trying to communicate. (Maggie Opondo, University of Nairobi)	Addressed
17-316	A	7	11	7	13	suggest merging last two sentences into one to improve the flow of the discussion (Mark Tadross, University of Cape Town)	Addressed
17-317	A	7	11	7	13	Last two sentences unnecessary (it is obvious) (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-318	A	7	16	13	13	THE CORE OF CHAPTER NEEDS REORGANIZATION: The section on adaptation practices is part of the core of the chapter. It can be improved by treating it within a framework of typology of adaptation practices or adaptation needs. The various criteria specified in page 7 lines 35 – 40 can be used separately or jointly in presenting to the average reader what adaptation practices that are out there. The resulting structure can serve as a framework to accommodate contemporary knowledge on the subject matter of the chapter. The same possibility could be explored using adaptation needs. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-319	A	7	16			17.2 There appears to be a lack of discussion of current adaptation taking place. Most of the discussion is of policies and interventions aimed at adaptation. But these form only a small part of adaptation. There is little description of how people and societies are actually adapting, or have adapted in the past, for example how	

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						<p>individuals respond to climate stress, how individuals, households and societies adjust to multiple stressors (conflict, economic globalisation, climate change - O'Brien and Leichenko 2000, Eriksen, Øyen et al 2005; Næss et al 2005; Eriksen and Lind 2005). Only by understanding how societies adapt can useful adaptation policies and interventions be developed and a discussion of such interventions make sense. The discussion of adaptation interventions is biased towards infrastructural and technical adjustments to reduce sensitivity and impacts, with little discussion of interventions aimed at reducing the socioeconomic causes of vulnerability, such as marginalisation of groups. If this is because few such interventions exist, that is an important observation that should be made.</p> <p>(Siri Eriksen, University of Oslo)</p>	
17-320	A	7	16	21		<p>17.2 More could be made of the value of assessing current adaptation “adaptation baselines” as a starting point for adaptation assessment, as an alternative to taking the climate-scenario driven approach. This is mentioned in Chapter 2.2.1.3 but could be linked here. There are many benefits including providing a known frame of reference for stakeholders, better incorporation of climate variability and extremes that may not be found in traditional climate scenarios and so on. Most of the words are already here but it could do with a bit more structure. (I note that some of this is in 17.4.2)</p> <p>(Roger Jones, CSIRO)</p>	
17-617	A	21	50			<p>What have we learned from this long section on various modes of analysis?</p> <p>(Jurgen Schmandt, Houston Advanced Research Center)</p>	Addressed
17-618	A	22	0			<p>Comments should be made about the extent to which this literature on adaptive capacity is grounded in evidence of adaptation to specific challenges (I.e. empirically grounded)</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	Addressed

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17-619	A	22	3	29	49	Much, if not all of what is written here belongs to the chapter on vulnerability. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-620	A	22	3	22	3	ASSESSMENT OF ADAPTATION CAPACITY, options and constrains. I notice that “adaptation capacity” in this sub heading is not mentioned anywhere again in the text. Could it be that “adaptation capacity is interpreted as adaptive capacity? This will be unfortunate because to me the two terms mean two different things. More importantly, between the two, it is adaptation capacity not adaptive capacity that is more relevant in the assessment of adaptation. If adaptation capacity is interpreted as an inventory of tools (policies, strategies, measures, early warning systems etc.), adaptive capacity is an inherent property of each exposure unit consisting of resources not limited to adaptation tools designed to enhance resilience and the capability to anticipate and forestall impacts or ‘bounce back’ after impacts have been delivered. To me, it seems that adaptation capacity is the space allocated in the Plenary outline to identify, describe, typify and assess the tools of adaptation. As I said earlier, adaptive capacity should be left to the chapter on vulnerability. The FOD seems to agree with this in several statements; for example on page 22 line 27 the draft is of the view that “much of our understanding of adaptive capacity comes from vulnerability studies” (James Adejuwon, Obafeme Awolowo University)	Addressed
17-621	A	22	3	24	46	Aren't there any studies that link adaptive capacity to structural elements in the economy? It seems to me that Alain DeJanvrey's students are starting to write about this. I think there was a study by Waters (I can't remember the exact reference) that did this or came very close, using general equilibrium models to identify key structural parameters that were related to the ability to adapt to natural shocks. As I suggested, earlier, I think the macro-economic literature on resilience and development needs to be integrated with the climate change literature on tis topic. I think there's a lot that can be learned. It's not just about resource scarcity and technology.	Addressed

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						(John Macintosh Callaway, Forskningscentre RISØ)	
17-622	A	22	3			Section 17.3. this section is in need of examples - e.g. of different social groups and vairiable vulnderablity and adaptive capacity in different locations (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-623	A	22	3	23	23	Whole section could be shortenned and tightenned (Liza Leclerc, UNEP)	Addressed
17-624	A	22	3	22	3	The term "adaptation capacity" appears out of line with the rest of the chapter, which uses the term "adaptive capacity" throughout. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-625	A	22	3			Section 17.3 - this section should come before the section 17.2 because it follows directly from section 17.1. I feel that the assessment of adaptation practices is more appropriate once the conceptual discussion is finished. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-626	A	22	5			17.3.1. It is a little confusing to return to a conceptual discussion of adaptive capacity here. It seems partly to overlap with the initial section 17.1.1. Perhaps the two should be merged. This could also facilitate a clearer explanation of the relations between the concepts. (Siri Eriksen, University of Oslo)	Addressed
17-627	A	22	5			Section 17.3.1: if adaptive capacity comes close to being the converse of vulnerability, as it does in this section, where does this leave the concept of resilience?	Addressed

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						(John Morton, Natural Resources Institute, University of Greenwich)	
17-628	A	22	7	22	10	This first section is repetitive because of the gap between section 17.1 and this section. See comment no. 37 above - it would be more appropriate to move this section up and then it would not necessary to repeat this information here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-629	A	22	7	22	17	Definition of adaptive capacity is not consistent with that appearing in 17.1.1 (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-630	A	22	8			Is the topic climate variability and climate change? This should be clarified at the beginning of the chapter. (Jurgen Schmandt, Houston Advanced Research Center)	Addressed
17-631	A	22	11	22	13	In Bangladesh, alternative livelihoods options have been promoted by a project titled "Reducing Vulnerability to Climate Change (RVCC)" by taking advantage of changed geo-physical realities: women are provided training to establish nurseries with species that are tolerant to high salinity in moderately saline areas which will become highly saline under climate change; people are taking advantage of water logging and hydroponics, creating floating vegetable beds and producing organic vegetables. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-632	A	22	11		13	I chose this passage because it is the strongest mention I found in the chapter that adaptation could take a positive direction. The chapter generally is well researched and argued and I agree with most of what is said there. However, I found the lack of discussion of opportunities for positive adaptive behavior distressing. By positive, I don't mean undoing damage, but rather taking advantage of opportunities afforded by a warmer climate, even one with higher variability in weather behavior.	Addressed

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						(Michael Canes, Logistics Management Institute)	
17-633	A	22	13	22	17	"section 17.3.1 comment: delete from line 13: Adaptive capacity....(repetitive)" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-634	A	22	15			"adaptation, consciously or unconsciously" - this is inconsistent with previous comment that adaptation can only be conscious (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-635	A	22	16	22	17	"technology' should also be identified as a resource. "Access to technology" makes a huge difference in real-life coping, especially during disasters. Even access to infrastructure may sometimes appear to be quite resourceful, as observed in the case of fleeing people stranded on the interstate highway just prior to landfall of hurricane Catherina, in the USA. Had the other side of the interstate been open to the fleeing traffic, many people could save their lives. The resource was simply wasted, due to lack of both planning and coordination. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-636	A	22	19	22	25	Even where institutional, financial and technological capacity exists, adaptation may not take place (Lisø et al 2004). (Siri Eriksen, University of Oslo)	Addressed
17-637	A	22	19	22	25	Avoid duplication in this chapter. Very similar thoughts (and wordings) are brought forward on p. 23 (lines 45ff.) and on p. 24 (lines 15-21). (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-638	A	22	19	22	25	Isn't the capacity to adapt the same as the capacity to respond? Are increased adaptive capacity and decreased vulnerability directly and proportionately related?	Addressed

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						What is the relationship? (Liza Leclerc, UNEP)	
17-639	A	22	19	22	25	It is correct that the adaptive capacity is needed to minimize risk as well as take advantage of opportunities in both developed and developing countries, as written in the text. It seems to me that the more concerns should be paid to the most vulnerable people and regions, namely developing countries where the necessity of enhancing adaptive capacity is urgent, when we discuss the adaptation and adaptive capacity. Actually the adaptation issue should be more important for the developing countries than for the developed countries. (Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))	Addressed
17-640	A	22	21	22	22	Modify the sentence starting on line 21 as follows: "Although high income per capita may neither be necessary nor sufficient for adaptation (Moss 2001), it makes successful adaptation more likely because, among other things, wealthier societies generally have greater access to the economic and human resources necessary to afford and implement the technologies needed to cope (Goklany 1995, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-641	A	22	21			In view of statement on page 34, lines 32 - 33; statement on page 22, line 21 should omit 'neither a necessary' in order to avoid complications. (Bernard Edward Gomez, Department of Water Resources)	Addressed
17-642	A	22	24	22	25	"In short..." - I am not sure if I agree that adaptive capacity is needed to take advantage of opportunities in both developed and developing countries - this statement is too general. This needs to be more explicit to add any value to this chapter (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed

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17-643	A	22	27		30	From the literature, I would say the second definition of vulnerability is more prominent, but the first definition makes one think that vulnerability as outcome of climate change is more important - I would swop them around. (Gina Ziervogel, University of Cape Town)	Addressed
17-644	A	22	28			Vulnerability in the climate change literature... (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-645	A	22	28	22	29	"Vulnerability is often considered an outcome of climate change..." - I disagree with this. Vulnerability is not an outcome of climate change; if anything, it could be seen as a consequence of effects triggered by climate change, such as poor harvests, degradation of drinking water quality, etc. but it is not because of cc that people are vulnerable - people are vulnerable to these impacts because of their existing conditions - poverty, gender, race, location, political affiliation, belief systems, etc. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-646	A	22	29	22	31	"However, vulnerability can also be seen as a state or condition..." - there are a number of scholars who would disagree with this approach (Cardona, Green) in particular because vulnerability is a relative concept - people cannot simply be "vulnerable" without being "vulnerable to something". Thus, vulnerability cannot be considered a condition; if this is to be kept, something needs to be noted about a "relative state or condition" (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-647	A	22	30			after climate change add: "as is typical in the hazards literature" (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-648	A	22	30			Downing and Patwardhan (2005) Assessing Vulnerability for Climate Adaptation.	Addressed

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						In Lim et al. (Erika Spanger-Siegfried, Union of Concerned Scientists)	
17-649	A	22	33	22	37	The meaning of these sentences is unclear. How is vulnerability reduced by adaptive options? (Siri Eriksen, University of Oslo)	Addressed
17-650	A	22	33	22	33	Rather than "Both types of vulnerability...", this should read "Vulnerability in both senses..." (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-651	A	22	37	22	39	A good point. It should be noted, here or in the previous section, that none of the examples of adaptation options described in the previous section are of the type that address the underlying causes of vulnerability. (Siri Eriksen, University of Oslo)	Addressed
17-652	A	22	37	22	39	Here also Blake et al 1994 or Wisner et al 2004 could be referenced. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-653	A	22	39			Add the following references: Goklany (1995, 1999a, 2005b). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-654	A	22	41			"...the indicator approach has been widely used..." - I disagree that this approach has been used WIDELY. It has certainly been attempted by some (see Downing et al UNEP publication) but has not really been picked up so using the word "widely" is a bit of an exaggeration (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed

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17-655	A	22	41	23	2	There are a lot of limitations to using the indicator approach to assess vulnerability. These should be mentioned. Indicators do not capture the dynamic nature of vulnerability well nor the heterogeneity between actors. (Gina Ziervogel, University of Cape Town)	Addressed
17-656	A	22	46			Many believe that indices are too general to be able to reflect vulnerability and should not be promoted to this degree. Vulnerability is very location- and circumstance-specific and not only impact-specific. I don't agree with the way this is written - it needs to reflect the other perspective of indices too. I see you pick this up on page 24, line 32-45 - maybe you want to consider moving this up? You also pick up on this on page 24 line 48 and on...so I wonder whether you should instead rewrite your first section on page 23 to match with the comments on page 24. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-657	A	22	50			I would add "the propensity for technological change" or "technological prowess" to the list of generic indicators, and add the same references as listed in the previous comment. See also next comment. (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-658	A	23	0			Section 17.3.2 - strangely this section says almost nothing on technology; it lacks examples (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-659	A	23	1			Clearly institutions, knowledge and technology can be, and often are, impact-specific, but they are also critical for the generic indicators. See Goklany (1995, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed

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17-660	A	23	2			<p>It would be useful to acknowledge here work that has been completed to indicate human vulnerability to hydrometeorological extreme events. Two global projects stand out. UNDP Disaster Risk Index (2004 - see comment 7 for ref) developed indicators for national level vulnerability to flood and tropical storm and a World Bank Hotspots project with Columbia University had sub-national assessments for flood, storm and drought. Both developed indexes that were calculated with past mortality or economic loss data and so are limited in thier ability to forecast future losses. Key challenges to come from these projects are i) the lack of globally accesible disaster loss data and ii) the difficulty of assessing progress in vulnerability reduction - it can be that excellent and productive vulnerability reduction initiatives are swamped by background increases in vulnerability. This is a strategic challenge for donors who may seek to reward those enacting vulnerability reduction policies.</p> <p>(Mark Pelling, King's College London)</p>	Addressed
17-661	A	23	4		23	<p>notions of adaptive capacity and coping range are not clear - Is there more specific work on these notions in the TAR? If so, could these be brought in?</p> <p>(Jan Corfee-Morlot, University College London & OECD)</p>	Addressed
17-662	A	23	4		11	<p>it strikes me as if the distinction between adaptive and coping capacity should come sooner in the concept definition section early on in the chapter</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed
17-663	A	23	11			<p>What you can underscore here as well is that coping can lead to increased vulnerability in the long run (see Susanne Davies, 1993, 1996)</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-664	A	23	13	23	23	<p>What are policy implications? One aspect may be that forces that push people into destitution (such as conflict/violence/exclusion Eriksen and Lind, 2005) may make</p>	Addressed

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						<p>coping or crisis measures a permanent adjustment, not because the coping strategies are viable but because other livelihood options have been undermined. Among destitute groups with such low human security, the types of adaptation measures described in the previous section are unlikely to be relevant. Technical, sectoral adjustments are unlikely to benefit people who operate in the informal sectors. There is a need to identify ways of reaching the most vulnerable and destitute, or pro-poor adaptation options (Eriksen 2005; Eriksen and Næss 2003). The security nets and resources critical to adaptation among the most vulnerable (such as local biodiversity, customary resource rights, informal institutions) need to be discussed.</p> <p>(Siri Eriksen, University of Oslo)</p>	
17-665	A	23	15		16	<p>The coping range may expand - in response to what? Previous sentence? Slightly confusing sentence</p> <p>(Gina Ziervogel, University of Cape Town)</p>	Addressed
17-666	A	23	18	23	19	<p>This example seems rather unlikely for a warming world--a better example might be an extended heat wave such as happened in Europe in 2003.</p> <p>(Michael MacCracken, Climate Institute)</p>	Addressed
17-667	A	23	18	23	18	<p>You could add that coping action in one part of a system can increase vulnerability in another part of the system or in the system overall. There is nothing intrinsically beneficial about coping capacity. Like any asset it is a source of inequality precisely because it is a resource for improves wellbeing for those who have it!</p> <p>(Mark Pelling, King's College London)</p>	Addressed
17-668	A	23	22	23	22	<p>I would consider rewording the last part of this sentence as it makes it sound like climate change will have a negative impact everywhere</p> <p>(Mark Tadross, University of Cape Town)</p>	Addressed

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17-669	A	23	26			17.3.2 Local knowledge should be part of this discussion of technology and knowledge. (Siri Eriksen, University of Oslo)	Addressed
17-670	A	23	26			Take "role of technology" out of the title. You discuss far more than technology here, and should do so, so it's an unnecessary addition (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-671	A	23	26			Suggest removing "role of technology" from header (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-672	A	23	28	23	43	In Bangladesh, the rather poor dissemination of flood forecasting with very short lead time made the warning system ineffective. However, with the advent of cellular telecommunication technology, the dissemination process has been boosted and the warning system has become effective. Even in developing country, a simple technological breakthrough can be extremely effective towards advancing adaptation. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-673	A	23	28			Replace "important" with "critical". References: Goklany (1992, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-674	A	23	28		43	If there are some database or tables of such technologies, please mention here. (Hideyuki Kobayashi, Ministry of Land, Infrastructure and Transport)	Addressed
17-675	A	23	33	23	34	Adaptation can also result in increased hazard - cooling systems are a great example, with the increased demand for energy produced by thenadaptative action	Addressed

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						of individuals using air conditioning. (Mark Pelling, King's College London)	
17-676	A	23	36			[1] Insert "formal" before "research programs", [2] Add "universities" to "government and the private sector". [3] Add to the end of this sentence the following: "..., as well as more informal efforts undertaken in response to societal incentives for innovation." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-677	A	23	36			capacity: (insert colon not comma)? (C. Gregory Knight, Pennsylvania State University)	Addressed
17-678	A	23	37	23	38	Modify the sentence starting on line 37 as follows: "The capacity to undertake such programs may be linked to economic AND HUMAN RESOURCES, AND THE institutions and incentives THAT SUSTAIN THEM (Goklany 1999a, 2005b)." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-679	A	23	45	24	2	The sad experience of hurricane Catherina may be provided here as an eye opener. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-680	A	23	45	24	2	Avoid duplication (doing this I refer to my comment no. 54 above). (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-681	A	23	45	23	47	As for references here, I think what you have is discussions about impacts of floods in Bangladesh compared with impacts of floods in the US - Bangladeshis lose less because they possess less, but the cost of losses in economic terms in the US is much greater. Nevertheless, while the overall financial cost of the impacts may be higher in the US, greater security networks such as insurance will be available to most	Addressed

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						affected citizens. The relative costs in Bangladesh will therefore be higher. A reference for this is Terry Cannon (1994) 'Vulnerability Analysis and the Explanation of 'Natural' Disasters' in Varley, A.(ed) Disasters, Development and Environment, John Wiley and Sons: Chichester (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-682	A	23	47	50		Again, chapter 4 of the UKCIP report mentioned above is relevant here. (Richenda Connell, Acclimatise)	Addressed
17-683	A	23	47			Tol et al 2004 could be cited here (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-684	A	23	47	23	50	Please give examples to support the statement. (Pauline Dube, University of Botswana)	Addressed
17-685	A	23	47			Refs: Goklany (1995, 1999a, 2000, 2005b). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed – read an incorporated where appropriate
17-686	A	23	47			refs : references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-687	A	23	47	23	47	as noted in text (and elsewhere) references need to be inserted for these statements (Mark Tadross, University of Cape Town)	Addressed
17-688	A	23	48	24	1	Modify the beginning of the sentence starting on line 47 by striking "However" and change "show" on line 48 to "reinforce" [Reason: The pre-TAR studies cited in comment 25, for example, do, indeed, note the importance off the factors noted in	Addressed

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						this sentence.] (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-689	A	23	48			TAR not defined (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-690	A	23		28		The structure of Section 17.3.2 is very unclear to me. Can't you give a better roadmap or write the paragraphs so that you can quickly grasp what the key elements of this section are? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-691	A	24	4	24	10	The following text may be useful here but stems from my unpublished PhD thesis so may not be possible to cite or use (?): "Although impacts of hazards are inequitably distributed, as Burton et al. (1993) note, the inequity of impacts from hazards is not randomly distributed. In this context, Dow (1992) defines vulnerability as the differential capacity of groups and individuals to deal with hazards, based on their physical and social positions, and Susman et al. (1984) say that vulnerability is the degree to which different classes of society are differentially at risk. This indicates that vulnerability is an important concept in development, originating in physical fragility or exposure, socio-economic frailty, and lack of resilience (Cardona, 2004). The importance of vulnerability in the context of development is such that McEntire proposes speaking about "invulnerable development" rather than sustainable development (2000: 58). He defines this as "development pursued in such a manner as to address vulnerabilities, and thereby decrease the probability that social, political and economic progress will be set back by disaster" (McEntire, 2000: 58)." (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-692	A	24	4	24	5	"A distinction has been made betweenin general." Is this distinction really useful? Aren't technology and management a part of development in general? If the	Addressed

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						distinction is valid and useful, then please explain how is it relevant to the theory and practice of adaptation? (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-693	A	24	4	24	10	Why is this distinction necessary? Not particularly clear from paragraph. (Frank Sperling, The World Bank)	Addressed
17-694	A	24	6			"need for theoretical frameworks"... really, just that? I would say we need far more than theoretical knowledge practical knowledge on what to do and how to get our knowledge across to those doing it. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-695	A	24	6	24	9	A separate paragraph maybe dedicated to the frameworks to understand information processing and decision-making about adaptation options by actors at different scales. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-696	A	24	9	24	10	What is meant by the "development framework"? It might be useful to briefly describe that. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-697	A	24	12		45	Something happened with national indicators of adaptive capacity, but did not give the opinion of IPCC on what are the national indicators. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-698	A	24	13	24	21	I don't believe there is any contradiction between saying that adaptive capacity is "related to" (rather than "equated with") "development" and saying that "national	Addressed

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						<p>aspirations" can affect the ability to adapt. Being wealthy and possessing the necessary human and social capital to employ adaptive technologies does not mean that those technologies will be deployed. Ultimately, the actors involved in adaptation will try to optimize their well-being as they perceive it. As a result, some societies may choose one bundle of responses, while others may choose other bundles. This is because, as also noted in Goklany (1999a), different societies weight the determinants of well-being differently, and these weights, moreover, change with time (as the population's circumstances and preferences change/evolve).</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	
17-699	A	24	13	24	21	<p>1st para to National indicators of adaptive capacity: Please check you referencing here. The Poverty and Climate Change (POVCC) report (AfDB et. al, 2003) does not simply equate adaptive capacity with development. Your reference selects from the definition in the glossary, which states also that adaptive capacity cannot be easily measures. Yes, it relates to a variety of factors, some of which are linked to levels of development, but it also notes other factors such physical exposure associated with climate risks. Hence, it takes notion that the issue is more complex and equating adaptive capacity with levels of development would be an oversimplification. The overall message of POVCC is more focused on the impacts of climate change on the sustainability of development processes and consequently the need for adaptation, rather than the other way round. Please consider if Haddad (2005) is correctly referenced here.</p> <p>(Frank Sperling, The World Bank)</p>	Addressed
17-700	A	24	15			<p>Add to the references on this line: Goklany (1999a, 2000, 2005b).</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	Addressed
17-701	A	24	15	24	18	<p>See my comments no. 54 and 55 above.</p>	Addressed

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						(Margareta E. Kulesa, Mainz University of Applied Sciences)	
17-702	A	24	23		30	See Carolan and Bell 2003 for another relevant reference on the notion of trust. There is a broader literature on social capital; a recent OECD document may be of interest - "Building sustainable societies: the role of social protection" (OECD document - DELSA/ELSA(2003)6) (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-703	A	24	23	24	35	it is not clear why these two paras are under "National indicators..." (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-704	A	24	23			Line 23 onwards. In this paragraph issues of governance are introduced, which is important. There is an opportunity here to flag up issues of equity too which as far as I can tell are not included in the chapter. (David Thomas, University of Oxford)	Addressed
17-705	A	24	24	24	26	Please describe what is meant by 'generic adaptive capacity' before using the term or at least refer to the literature that defines and describes the term 'generic adaptive capacity'. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-706	A	24	27			add "social" to capital, if that's what is meant here, or otherwise clarify (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-707	A	24	28			This line refers to 'trust'. UKCIP has found that 'trust' in the climate change scenarios by different decision-makers is also important in terms of their engaging with adaptation. (Richenda Connell, Acclimatise)	Addressed

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17-708	A	24	32		35	<p>This conclusion about use of development levels and resources [not sure what this means] as indicators of adaptive capacity when preceding paras (lines 15-30; also 37- 45) suggest a more complex, pluralistic set of notions that include intangibles such as trust and social networks. Do you mean to suggest that we can quantitatively compare adaptive capacity indicators by looking at wealth or other development indicators? And what of composite development indicators such as HDI as a proxy?</p> <p>(Jan Corfee-Morlot, University College London & OECD)</p>	Addressed
17-709	A	24	32	24	35	<p>Give examples of the different scales that are being referred to</p> <p>(Pauline Dube, University of Botswana)</p>	Addressed
17-710	A	24	32	24	35	<p>Conclusion in first sentence is not clearly supported by the previous two paragraphs. Second sentence is intuitive, is there something more concrete that can be said about adaptation efforts at different scales and levels of governance?</p> <p>(Frank Sperling, The World Bank)</p>	Addressed
17-711	A	24	47			<p>Local context -- don't lines 32-35 fit better here?</p> <p>(Jan Corfee-Morlot, University College London & OECD)</p>	Addressed
17-712	A	25	0			<p>The latter parts of the chapter are much more concrete with useful examples of what is actually meant by adaptation, although we still don't learn where adaptations and adaptation strategies come from.</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	Addressed
17-713	A	25	1		6	<p>Place based, interpretive (qualitative) research - is it only relevant at local levels or does it also help us to understand broader communicative and science-policy processes for translating global environmental issues into local action agendas?</p>	Addressed

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						<p>Possibly also lessons for the international or national policy processes from these local experiences?</p> <p>(Jan Corfee-Morlot, University College London & OECD)</p>	
17-714	A	25	5	25	5	<p>Instead of 'place-based' studies, could we say 'micro-level, situation-specific' studies?</p> <p>(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))</p>	Addressed
17-715	A	25	17			<p>It is important to note that local studies of adaptive capacity and action also have the potential to empower local actors and contribute to the building of adaptive capacity. A number of NGO (ActionAid, International Federation of the Red Cross and Red Crescent Societies, Tearfund) have experience of using participatory vulnerability and capacity assessments to both reveal local assets, vulnerabilities and hazards and also be a catalyst for stimulating local concensisation and action. You could add something like 'Participatory approaches have the potential to contribute to processes of building or realising adaptive capacity through participatory methodologies. Research on hese methods has idenitified a number of challenges: data accuracy and systematisation, ethical questions of enganing in local power dynamics, the potential for up-scaling or aggregating datasets and mixed methodologies see Pelling, M (2005) Learning from others: scope and challenges for participatory disaster risk assessment, Disasters (in press).</p> <p>(Mark Pelling, King's College London)</p>	Addressed
17-716	A	25	20		21	<p>"economic policies determined at the regional, national AND INTERNATIONAL level" (think globalization, free trade agreements etc....)</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	Addressed

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17-717	A	25	21	25	21	"Level" might be "levels" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-718	A	25	23			refs : references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-719	A	25	23			You are looking for references here. I have a lot of material on this, unfortunately most of it is contained in my doctoral thesis and thus in a number of as yet unpublished papers. In fact, my case study on adaptation in El Salvador fits the argument here perfectly - is it too late to get it included in the chapter (I assume it needs to go into a peer-reviewed journal, and cannot simply be included as a working paper). The findings also echo O'Brien et al's findings on double exposure (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-720	A	25	25		27	introduce notion of low adaptive capacity (to outside stressors generally) - and the idea that it might hold across broad social phenomena such as globalisation as well as climate change. Taking this combined with the example in Box 17.3 seriously suggests that it is impossible to disentangle climate vulnerability and adaptive capacity from broader notions of vulnerability to social and environmental disruptions -- again might suggest using something like HDI or other composite indicators of social and human development more generally as a proxy for cc adaptive capacity. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-721	A	25	27			At the end of this paragraph, you may also want to include a positive example; ask Diana Liverman or Coleen Vogel (Susanne Moser, National Center for Atmospheric Research)	Addressed

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17-722	A	25	27			BOX 17.3 not to be in bold. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-723	A	25	29	25	33	Adaptive capacity is also highly linked to levels of poverty, with the poor forced to choose to live and cultivate more vulnerable areas. (Sofia Bettencourt, The World Bank)	Addressed
17-724	A	25	29	25	29	remove " and for human population... "" (Pauline Dube, University of Botswana)	Addressed
17-725	A	25	29		33	No matter how heterogeneous adaptive capacity is, the authors should summarize a set of common/general indicators for different society and locality levels, as well as for age, class, gender, and social status. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-726	A	25	29	25	30	Could reference Bharwani et al (2005) ref provided earlier. (Gina Ziervogel, University of Cape Town)	Addressed
17-727	A	25	36	26	20	For the box 17.3, we, the readers, learned an Indian example only. What other people can do in for their countries are not clearly. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-728	A	25	37	26	20	BOX 17.3: Mapping adaptive capacity to multiple stressors belong to the chapter on vulnerability (James Adejuwon, Obafeme Awolowo University)	Addressed

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17-729	A	25	39	25	48	I think to reduce the size of the box (and increase the impact on the reader) I would suggest removing this first paragraph or placing it outside the box i.e. go straight into the details of the study (Mark Tadross, University of Cape Town)	Addressed
17-730	A	25	44		46	can you be more specific here? Which category of farmers do one thing, and which kind do something else? It would be more meaningful if this were more specific, giving more clues to what the deciding influences are on who does what. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-731	A	26	11	26	11	What is the reason for the higher adaptive capacity along the Indo-Gangetic Plains? I think a little bit more information would be useful. (Mark Tadross, University of Cape Town)	Addressed
17-732	A	26	14			The map legend, and the way the map is referenced in the text of the box, could be clearer (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-733	A	26	14	26		The shading on the map is not legible - if the final version will be printed in black and white then a more contrasting shading scheme is necessary. (Maggie Opondo, University of Nairobi)	Addressed
17-734	A	26	21	26	22	some body text between the 2 boxes would look better than having one box immediately after the other. (Mark Tadross, University of Cape Town)	Addressed
17-735	A	26	23	28	12	Women has a completely different viewpoint when they are asked to prioritize adaptation needs. In the southwestern Bangladesh, the major focus of adaptation	Addressed

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						<p>action for women was 'safe drinking water' in the backdrop of increasing salinity due to low flow in river systems and potential reduction of rainfall in drier (non-monsoon) months, while that for their male counterparts was either 'food production' for consumption or 'maintaining income' under climate risks (Ahmed and Schaerer, 2004).</p> <p>(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))</p>	
17-736	A	26	23	28	12	<p>Box No. 17.4 should be included as a sub-section. Strongly recommend a sub-section on gender issues.</p> <p>(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))</p>	Addressed
17-737	A	26	24	28	12	<p>BOX 17.4 also belongs to the chapter on vulnerability</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	Addressed
17-738	A	26	24	28	12	<p>This is a good example! What needs to be down is to shorten it.</p> <p>(Pauline Dube, University of Botswana)</p>	Addressed
17-739	A	26	24			<p>Box 17.4. In this discussion of gender, it would be useful to extend the discussion of empirical evidence to how groups of men and women adapt differently (not only that women may be generally more vulnerable than men and have poor access to resources). Women are also a heterogeneous group. Other important literature to include is political and social analysis of power structures, decision making and social differentiation and how these affect the accessing of different adaptation options. Adaptation measures promoted through formal mechanisms dominated by men may not be accessible to women or even undermine women's interests and increase their vulnerability. Adaptation interventions may serve to strengthen male dominated power bases unless women-controlled decision-making fora or processes (often informal) are included in the design of such interventions.</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed

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17-740	A	26	24	28	11	Reference could be made here to the changes many societies are undergoing at present, for example in Africa, in terms of rural-urban migration and HIV/AIDS, and the impacts this has on gender roles (e.g. the increasing number of orphans and children-headed households) and in turn vulnerability. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-741	A	26	24			Box 17.4 is very large in comparison to the text in this section. I wonder if most of the text can go to the main body as a section on gender, keeping the last two paragraphs in the box as the case studies ? (Mark Tadross, University of Cape Town)	Addressed
17-742	A	26	24	28	11	Box 17.4 is too long, should be shortened. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-743	A	26	30	26	30	are some of these older references in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-744	A	26				India map: Why are there no winners of globalisation in India? (Richard S.J. Tol, Uni. Hamburg)	Addressed
17-745	A	27	7	27	8	is this 1988 reference in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-746	A	27	21	27	21	It is difficult to recognise the scale of this inequality as much disaster loss data held globally is not gender disaggregated. (Mark Pelling, King's College London)	Addressed

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17-747	A	27	22			examine should be example (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-748	A	27	23			Another appearance of "natural disasters" - please see Comment no. 20 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-749	A	27	32		33	These are for South African women. Could they be summarized as "degree of illiteracy, mobility and work opportunities, and resources ownership issues", for example, for other countries/localities? (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-750	A	27	33			at the end of this paragraph, you should also add issues like mobility, freedom, and cultural norms/socialization to act independently of their husbands; recall the example of Bangladeshi women not seeking shelter from floods because their husbands weren't home... (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-751	A	27	36	27	40	Note that Arnell (2004) indicates that due to climate change, there could be a net reduction in the global population at risk of water stress in 2085 (see Goklany 2005a), (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-752	A	27	44	27	45	Both disaster refuges and relief camps need to be better managed so that women and girls are not made insecure or uncomfortable. Where this has happened, as for example in flood refuges in Bangladesh many more women have taken relief. (Mark Pelling, King's College London)	Addressed

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17-753	A	27	46			<p>The Ziervogel study:in Limpop. I am slightly concerned that this research which was carried out in just one small community without any wider coverage, is reported ina way that makes the findings appear to definitively apply to a whole province. Whenever I here this work presneted or see its findings I am concerned about the extremely small sample size employed by th resaechers. I think implications of the study should be toned down.</p> <p>(David Thomas, University of Oxford)</p>	Addressed
17-754	A	28	2	28	2	<p>are the stakeholder networks an alternative information source to the two previously mentioned ones ? If so maybe reword this last sentence to make this fact clearer.</p> <p>(Mark Tadross, University of Cape Town)</p>	Addressed
17-755	A	28	15	29	50	<p>Bringing in the case for different regions in section 17.3.3 will help to map out the spatial variations</p> <p>(Pauline Dube, University of Botswana)</p>	Addressed
17-756	A	28	15	29	49	<p>My suggestion for this paragraph (17.3.3 Dynamics of adaptive capacity, options and contraits) is to add one short paragrap to explain the relationship between the vulnerability and adaptative capacity, as it exists the close relation between them, in particular when we assess the adaptive capacity. The more vulnerable one region, the more necessary it is for it to adapt and enhace the adaptive capacity.</p> <p>(Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))</p>	Addressed
17-757	A	28	15			<p>Section 17.3.3. - This is yet another section on adaptive capacity. It has important points but is slightly repetitive and certainly focuses the chpater too much on the concept of adaptive capacity only.</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed

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17-758	A	28	15	29	50	A distinction should possibly be made between continuous increases in vulnerability and the adaptation options available versus discontinues or threshold changes. E.g. the response to increased severity of drought would be very different to a once of event that lead to sea water intrusion that destroyed a local water source. Equally response to species loss may need a new paradigm in conservation planning since planning in the past has been based on assumptions of a static environment. (Graham von Maltitz, CSIR)	Addressed
17-759	A	28	15	29	49	This part has too much words, figures and tables might be easy to understand. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-760	A	28	17	28	19	Please add 'technological' features in the long list of variety of differences in scales. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-761	A	28	17		29	You might want to consider referring to work on social and institutional innovations to promote cooperative management of environmental problemes here e.g. work by Ostrom, Stern, Dietz, Rydin, O'Riordan. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-762	A	28	17		20	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-763	A	28	19	28	20	some old references here. Are they in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-764	A	28	27	28	29	Delete sentence. Repetitive.	Addressed

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						(Liza Leclerc, UNEP)	
17-765	A	28	31			"section 17.3.3 comment: sub-section spatial variation and Box 17.3 from page 25 to 27 should be in the same session." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-766	A	28	37	28	42	Please give physical examples (Pauline Dube, University of Botswana)	Addressed
17-767	A	28	40			it's more than perceptions! Also understanding, valuation/judgment (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-768	A	28	42			replace "characterize various geographical areas" with "help shape societal discourse and response" (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-769	A	29	2	29	20	Promotion of adaptation options can also capture this dynamic nature of adaptation. In a recently implemented adaptation project in bangladesh, necessary actions/options have been considered at 3 time steps. (a) For a short time scale, the vulnerable communities are provided technical know-how to broaden their 'adaptive capacity', even they are provided with soft-term credits to cover initial investment cost for practicing alternative livelihoods; (b) for a medium to long-term operational scale, local government institutions are provided basic understanding on bio-geophysical aspects that are susceptible to climate variability and change, and the LGIs are assisted to develop their local-level adaptation (response) plans for future implementation with a view to 'modify the risks' from climate related stimuli; and (c) for a long time scale, advocacy at national level is underway to accommodate local level adaptation plans into 'regional- to national-level sectoral and holistic plans' (viz. National water Management Plan and Coastal Zone	Addressed

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						Development Strategic Plan). It is expected that local adaptation capacity will be enhanced following such a dynamic process and there will be incremental addition of adaptive capacity as the society benefits from each step considered under the project. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-770	A	29	2	29	20	"section 17.3.3 comment: sub-section temporal variation can be placed in discussion of future scenarios." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-771	A	29	3	29	20	A good example of temporal change in adaptive capacity is the evidence that average deaths from disasters have declined worldwide - see Guha-Sapir, D. Hargitt and P. Hoyois. 2004. "Thirty Years of Natural Disasters 1974-2003: the Numbers" Centre for Research on the Epidemiology of Disasters. UCL Presses. Universite de Louvain. Brussels (Sofia Bettencourt, The World Bank)	Addressed
17-772	A	29	3	29	4	Current coping mechanisms reflect past adaptations' - this needs to be expanded and current coping mechanisms explained. (Gina Ziervogel, University of Cape Town)	Addressed
17-773	A	29	7	29	7	old references in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-774	A	29	8		10	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Addressed

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17-775	A	29	8			IPCC, 2001 not listed in the references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-776	A	29	10			Brooks 2003 should have 2003a or 2003b as they are two references of Brook , 2003. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-777	A	29	17	29	18	The reference to Figure 17.2 appears to be incorrect. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-778	A	29	17	29	18	Figure 17.2 referred to in the text, is this the one on page 9? Since Figure 17.2 on page 9 does not show how the reduction of the number of deaths during floods referred to on page 29. (Maggie Opondo, University of Nairobi)	Addressed
17-779	A	29	17	29	18	figure 17.2 is wrong number and the figure is missing (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-780	A	29	17	29	18	figure 17.2 appears to be something else to that referred to. Can't seem to find it anywhere (Mark Tadross, University of Cape Town)	Addressed
17-781	A	29	17	29	18	Figure 17.2 is cited in the text but it is missing. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-782	A	29	21			Insert a new para as follows: "Similarly, at the global level, the average deaths per	Addressed

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						<p>year from climate and weather related events (i.e., drought, extreme temperature, famine, flood, slides, wave/surge; wild fires, wind storm) declined by over 95 percent between the 1930s and 2000-2003, while death rates declined overall by 98.5 percent [Goklany 2005c, based on EM-DAT, the OFDA/CRED database; this database probably missed a number of events in the early years, which suggests an even stronger downward trend]. If famines are excluded then both deaths and death rates peaked during the 1920s [Goklany, personal communication]. Similarly, long term data from the United States on cumulative deaths and death rates due to hurricanes, floods, lightning and tornados show that they peaked in the 1970s, and have since declined by over 50 percent for deaths and 64 percent for death rates [Goklany 2000 and personal communication]."</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	
17-783	A	29	21	29	21	<p>An additional tension to note is that between investing in resources to adapt to immediate stresses (such as improving shelter) and in long-term adaptive strategies (such as education).</p> <p>(Mark Pelling, King's College London)</p>	Addressed
17-784	A	29	22	31		<p>Are there reports now available on Hurricane Katrina and the European heatwave of 2003 that could be used here? I have attached a report by RMS.</p> <p>(Richenda Connell, Acclimatise)</p>	Addressed
17-785	A	29	22	29	49	<p>The relationship between adaptive capacity and adaptation also relates to vulnerability – the “adaptation deficit” indicating that vulnerability exists until adaptive capacity is exercised. This is not accounted for in the current IPCC definitions. Various methods of risk assessment being utilised for adaptation (e.g. in the Australian impacts and adaptation program do not account for this, stating that vulnerability is a function of exposure to climate change sensitivity and adaptive capacity; Allens Consulting 2005) with accounting for different states of preparedness and willingness to act. This structure works okay with generalisations</p>	Addressed

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						but operationalising it is difficult. Clear guidance would allow better methods to be framed without getting into the intricacies of definition. This issue is also shared by Chapter 2. (Roger Jones, CSIRO)	
17-786	A	29	22	29	49	This could be moved to section 17.3.1 as it answers questions raised in the reader's mind there. The second sentence in this para is burried but is very important new contribution of this report (Liza Leclerc, UNEP)	Addressed
17-787	A	29	22	29	49	There is a missed opportunity here to discuss inequality and power differentials within societies. Societies that theoretically have adaptive capacity may fail to adapt in practice because that capacity is controlled by interest groups or elites - cf. the failure to invest in adaptation to the threat of hurricanes to New Orleans. The use here of the abstraction "system" across human and ecological systems obscures the possibility of such an argument. The phrase "the motivation of the system" is appropriate neither to human nor ecological systems. (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-788	A	29	22	29	50	"section 17.3.3 comment: this sub-section can be placed in section 17.1 Concepts." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-789	A	29	23	29	49	Suggest moving this section to the initial section on definitions. (Sofia Bettencourt, The World Bank)	Addressed – now shortened in 17.1
17-790	A	29	28		31	Could develop the Hurricane Katrina example here (Jan Corfee-Morlot, University College London & OECD)	Addressed – left for N America chapter

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17-791	A	29	30	29	30	To expand out of the West, include Indian cities. (Mark Pelling, King's College London)	Addressed
17-792	A	29	33			Change "time" to "time and experience". (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-793	A	29	33	29	41	Sentence - "In other words..." is very obvious and should not be necessary (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-794	A	29	35	29	36	This sentence: "A system with a high capacity to adapt at present" appears to be in conflict with the sentence on line 44-47 on the same page: "Thus, to reduce the adaptation deficit, the future adaptive capacity of a system should not be represent a simple extension of past of adaptive capacity..." which also goes conflicts with a discussion noted in comment no. 26 on page 8 lines 7-20. This is also inconsistent with page 41, line 10-12 "Reducing vulnerability to existing hazards..." (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-795	A	29	37		41	some of this should go into the concept definition section early in the chapter (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-796	A	29	39	29		This sentence is not clear - what is meant by the phrase "failure of current adaption to keep pace with development"? What is meant by adaption deficit? (Pauline Dube, University of Botswana)	Addressed
17-797	A	29	40	29	40	Burton (2005) not cited. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed

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17-798	A	29	40			Burton 2005 is missing from Reference list (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-799	A	29	44	29	44	The term "Adaptation deficit" must be defined. Please refer to Ian Burton's speech/paper at the UNFCCC SB-22 adaptation workshop (Bonn, Germany, May 2005) or other reference. Otherwise the term may be interpreted in different ways by different readers. (Bonizella Biagini, Global Environment Facility)	Addressed
17-800	A	29	45		47	Here is another really important point that should make it into the executive summary (Susanne Moser, National Center for Atmospheric Research)	Addressed

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**Expert Review of First Order Draft
Confidential, Do Not Cite or Quote
December 5, 2005**

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17-318	A	7	16	13	13	<p>THE CORE OF CHAPTER NEEDS REORGANIZATION: The section on adaptation practices is part of the core of the chapter. It can be improved by treating it within a framework of typology of adaptation practices or adaptation needs. The various criteria specified in page 7 lines 35 – 40 can be used separately or jointly in presenting to the average reader what adaptation practices that are out there. The resulting structure can serve as a framework to accommodate contemporary knowledge on the subject matter of the chapter. The same possibility could be explored using adaptation needs.</p> <p>(James Adejuwon, Obafeme Awolowo University)</p>	<p>The structure of the chapter is governed by the plenary approved outline. However, now that Section 17.1 is considerably shortened, effectively the points being made in Section 17.2 are appearing relatively early in the chapter text. Section 17.2.1 does provide a broad range of examples of what adaptation practices are out there. This discussion now follows the structure highlighted in Figure 17.1 (i.e. adaptation to current climate variability, observed trends, and scenarios of future climate).</p>
17-319	A	7	16			<p>17.2 There appears to be a lack of discussion of current adaptation taking place. Most of the discussion is of policies and interventions aimed at adaptation. But these form only a small part of adaptation. There is little description of how people and societies are actually adapting, or have adapted in the past, for example how individuals respond to climate stress, how individuals, households and societies adjust to multiple stressors (conflict, economic globalisation, climate change - O'Brien and Leichenko 2000, Eriksen, Øyen et al 2005; Næss et al 2005; Eriksen and Lind 2005). Only by understanding how societies adapt can useful adaptation policies and interventions be developed and a discussion of such interventions make sense. The discussion of adaptation interventions is biased towards infrastructural and technical adjustments to reduce sensitivity and impacts, with little discussion of interventions aimed at reducing the socioeconomic causes of vulnerability, such as marginalisation of groups. If this is because few such interventions exist, that is an important observation that should be made.</p> <p>(Siri Eriksen, University of Oslo)</p>	<p>A new Table 17.2 as well as the text in 17.2.2 provides a diverse range of examples of current adaptations. O'Brien and Liechenko is already cited in 17.2.2, and some of the other proposed references have also now been added. The discussion on adaptation practices has now been broadened considerably (incl. winter tourism, rural livelihoods, agriculture, drinking water, heat wave alert plans, etc.). See generally the new Table 17.2 and the examples throughout 17.2.2</p>
17-320	A	7	16	21		<p>17.2 More could be made of the value of assessing current adaptation “adaptation baselines” as a starting point for adaptation assessment, as an alternative to taking the climate-scenario driven approach. This is mentioned in Chapter 2.2.1.3 but could be linked here. There are many benefits including providing a known frame</p>	<p>The discussion on methods for assessing adaptation practices has now been considerably reduced (to a box), given the tight page limits and opinions of several</p>

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						of reference for stakeholders, better incorporation of climate variability and extremes that may not be found in traditional climate scenarios and so on. Most of the words are already here but it could do with a bit more structure. (I note that some of this is in 17.4.2) (Roger Jones, CSIRO)	reviewers that this discussion did not belong in this chapter. It might be more appropriate for Chapter 2 to cover these issues.
17-321	A	7	16			It is here in Section 17.2. and associated subsections where it is most clearly established that adaptation efforts are part of a forward looking climate risk management approach, while previous discussions place a more distinct focus on adaptation. This section or elements of it should come earlier. The emphasis on modelling in earlier sections should be more balanced with what can implications for adaptation efforts can be derived from the analysis of trends in observations and addressing existing vulnerabilities. (Frank Sperling, The World Bank)	The position of this section (relative to others) is governed by the plenary outline. However, now that Section 17.1 is considerably shortened, effectively the points being made in Section 17.2 are appearing relatively early in the chapter text.
17-322	A	7	18	7	18	17.2.1 Adaptation Practices (Changed to "practices") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Done
17-323	A	7	20	7	24	Good use of examples here ot illustrate points -- first 2 sections above could follow suit. (Jan Corfee-Morlot, University College London & OECD)	A lot more examples have been added throughout 17.2, including a new table on adaptation practices.
17-324	A	7	20	8	5	A number of statements here need references (Pauline Dube, University of Botswana)	Several references have been added throughout the section.
17-325	A	7	20	7	25	Unclear what "former" and "latter" refer to in the second sentence in this paragraph as they could refer to "adaptation" and "changes" or "enhancing resilience" and "reducing vulnerability" (but only if these are reversed) or "observed" and "expected". (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Sentence has been reformulated.
17-326	A	7	21			add concept of opportunity to resilience and vulnerability (C. Gregory Knight, Pennsylvania State University)	Not clear what the reviewer means. The definition of adaptation practices as formulated in the text appears adequate.
17-327	A	7	27		33	Adding an example or two here would be very helpful. Maybe you can use some from the regions that are currently underrepresented (see overarching chapter comment above).	The paragraph has been restructured to give generic examples of adaptations along several dimensions. Specific examples of practices are

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						(Susanne Moser, National Center for Atmospheric Research)	provided extensively in the remainder of the section.
17-328	A	7	27			"With an explicit focus on real world behaviour ..." - Are any decision makers going to admit any other focus. If you are really trying to hint of a separation between the academic theory and practice of adaptation, then tackle this issue directly and constructively. It would be enormously valuable. (Ian Noble, The World Bank)	Sentence has been changed
17-329	A	7	27			What are "particular" decision-makers? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Sentence has been reformulated and "particular decision-makers" has been removed.
17-330	A	7	27	7	33	Include references, e.g. the need to mainstream adaptation into broader development and policy context is explicitly recognized by the ten-agency report "Poverty and Climate Change", which was signed by heads of agencies. (Frank Sperling, The World Bank)	The discussion on mainstreaming has been removed from this particular section to tighten the discussion. Mainstreaming is however discussed later in 17.4.1 The Poverty and climate change Report is cited in 17.3.2
17-331	A	7	29	7	31	Insert references to support the statement (Pauline Dube, University of Botswana)	Sentence has been removed.
17-332	A	7	29	7	33	This is a key point. It is highlighted in the Executive Summary but should get more prominent billing in the organization of the chapter. (Jurgen Schmandt, Houston Advanced Research Center)	This point is now elaborated in 17.2.2 within the context of specific examples mentioned Table 17.2
17-333	A	7	31	7	31	Change to "under the influences of multiple ..." (Michael MacCracken, Climate Institute)	Sentence has been removed.
17-334	A	7	31	7	33	This is repeated in lines 48-50 on page 7 and again in lines 3-5 on page 8 and given word limitation two of these could be omitted. (Maggie Opondo, University of Nairobi)	Done.
17-335	A	7	32	7	32	Change to "it must often be integrated" (Michael MacCracken, Climate Institute)	Sentence has been removed.
17-336	A	7	35	7	40	We can add 'temporal scale' and also 'technological choice' as two other (significant) dimensions. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Technological choice is now mentioned within the typology. The temporal dimension is elaborated in the following paragraph.
17-337	A	7	35	7	40	'Technological choice' offers another very important dimension in relation to	Technological choice is now mentioned within

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						adaptation practices. Technological divide can have differentiated adaptation benefits for the population of a vulnerable area given similar exposure to a climate-driven hazard. The choices, however, can be very subjective and most likely to be influenced by financial ability of the user(s). (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	the typology.
17-338	A	7	35	7	40	One dimension seems to be missing here - the temporal scale (extent of planned activity varying with time: short-, medium-, and long-term). This might have tremendous 'incremental' adaptation value. For example, gradual increase in crest height of a sea-facing embankment and refurbishing the embankment structure itself; increasing capacity of cyclone shelters along a vulnerable coast to accommodate increasing population in the neighbourhood (as in Bangladesh). (Pls. cross check with line 7-9 of page#8: the time dimension is actually discussed). (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	The temporal dimension is elaborated in the third paragraph of 17.2.1
17-339	A	7	35	7	40	Insert a reference to support the statement (Pauline Dube, University of Botswana)	The typology itself was created by the chapter authors, and as such has no reference. With regard to specific adaptation practices, meanwhile, the remainder of this section is full of examples with appropriate references.
17-340	A	7	35		40	The categories are helpful, but actual practices should be cited ...a table would be very helpful here (C. Gregory Knight, Pennsylvania State University)	A new Table 17.2 has been inserted.
17-341	A	7	35	7	40	A simple differentiation by type of action should have been attempted here: investment, physical or otherwise, organisational, regulatory, educational, fiscal, pricing, property rights-linked etc. (John Morton, Natural Resources Institute, University of Greenwich)	There are infinite ways to create a typology. We think the cut taken the text covers most of the relevant dimensions. Many of the dimensions mentioned by the reviewer (e.g. investment, regulatory, market-based etc.) have now been added.
17-342	A	7	35		40	what about categorization by type or by time of intervention? You make these distinctions later on anyway (see p.13, lines 1-4) (Susanne Moser, National Center for Atmospheric Research)	There is now categorization by type of action. The time dimension, meanwhile is elaborated in the following paragraph.
17-343	A	7	35	7	40	What are we supposed to gain from this paragraph. None of it will be "news" to	The reviewer is entitled to his opinion.

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						most readers. (Ian Noble, The World Bank)	However the interest expressed by several other reviewers in this typology indicates there is utility to this discussion.
17-344	A	7	37			In terms of actors, both NGOs and local communities seem entirely relevant to this list. (Erika Spanger-Siegfried, Union of Concerned Scientists)	Inserted.
17-345	A	7	42	7	44	Insert a reference to support the statement (Pauline Dube, University of Botswana)	There are plenty of references in 17.2.2 to illustrate practices to adapt to the impacts of weather as well as natural climate variability.
17-346	A	7	42	8	5	This para speaks of "a long record", of "examples of", but quotes no sources (other than the TAR). (Ian Noble, The World Bank)	See para 2 of 17.2.2
17-347	A	7	42	8	5	This paragraph requires several grammatical changes. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Entire para has been changed/removed.
17-348	A	7	44	7	48	Some references which describe/include the adaptation measures to long-term climate impacts and the adaptation measures that take into account scenarios of long term climate change, maybe useful here. (Upasna Sharma, Indian Institute of Technology, Bombay)	Such examples are provided throughout 17.2.2, esp. the latter half of this section.
17-349	A	7	46	7	46	end of sentence needs some references. (Mark Tadross, University of Cape Town)	Section has been restructured and sentence has been removed.
17-350	A	7	47			Delete 'also' from the line. (David Thomas, University of Oxford)	Section has been restructured and sentence has been removed.
17-351	A	7	48		48	the sentence ending with "impact variability" calls for a reference (Susanne Moser, National Center for Atmospheric Research)	Section has been restructured and sentence has been removed.
17-352	A	8	0			17.2.2. This heading has been skipped (Jan Corfee-Morlot, University College London & OECD)	Fixed.
17-353	A	8	0			"Table 10.1 comment: no need such information here and delete the table" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	For action by Chapter 10.
17-354	A	8	2			Add references at the end of line: Goklany (1995, 2000, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Section has been restructured and sentence has been removed.

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17-355	A	8	2	8	2	no need for second 'contextual' (Mark Tadross, University of Cape Town)	Section has been restructured and sentence has been removed.
17-356	A	8	3	8	5	Insert a reference to support the statement (Pauline Dube, University of Botswana)	Section has been restructured and sentence has been removed.
17-357	A	8	3		5	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Section has been restructured and sentence has been removed.
17-358	A	8	3	8	5	Repetition of what has already been mentioned in the previous lines. Could be avoided. (Upasna Sharma, Indian Institute of Technology, Bombay)	Section has been restructured and sentence has been removed.
17-359	A	8	5			references? For mainstreaming (Gina Ziervogel, University of Cape Town)	Section has been restructured and sentence has been removed. Mainstreaming is discussed later in Section 17.4.1
17-360	A	8	7	8	20	Another reason in favor of "no regrets" measures to adapt to current climate variability is the life-span of the assets one is trying to protect. In developing countries, apart from major infrastructure, few last more than 25 years, and many have shorter time spans. Hence, building them for long-term climate change effects may not be effective. The longer-term perspective will, however, be needed to protect assets with long life spans (e.g. roads, major public buildings). (Sofia Bettencourt, The World Bank)	The need for adapting to current climate risks is discussed in the third para of Section 17.2.1 of the Third Order Draft. The need for incorporation of longer term (climate change) risks in the case of longer term assets such as infrastructure design etc. is also discussed later on in the same paragraph.
17-361	A	8	7	8	20	As an additional example where only adaptation to longterm trends may prove useful is forestry due to the longevity of trees and the substantial time lags of effects initiated by forest management. A useful reference may be Kellomäkki, S., Leinonen (eds.). 2005. Management of European Forests under changing climatic conditions. Research Notes 163, University of Joensuu, Finland. (Manfred Lexer, Institute of Silviculture)	The reference cited by the reviewer is actually a project report that does not seem to have been published in a journal, book or other publication. We encourage the reviewer to submit a more reference that could be more appropriate for such an assessment of literature.
17-362	A	8	7	8	9	It would be a bit clearer if it said "three levels, including responses to: current variability; observed medium and long-term trends in climate; and model-based scenarios ..." (Michael MacCracken, Climate Institute)	Done.
17-363	A	8	7	8	20	An opportunity has been missed to link these levels to actors and spatial scales: it is	Need reference to published literature (as

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						certainly worth hypothesising that individuals and households are more likely to adapt to current variability than to observed trends or models, while adaptations to model-based scenarios are more likely to be made by governments and large companies than by smaller/more local actors (though governments/companies are also able to adapt to current variability and observed trends). (John Morton, Natural Resources Institute, University of Greenwich)	opposed to hypothesis) to justify this point.
17-364	A	8	7			Are there such things as 'adaptation practices'? Ideally there are, but to phrase adaptation in this way makes it sound as if options can be selected from a list and then applied. 'Adaptation responses' would perhaps be better in meaning. (David Thomas, University of Oxford)	The terms of reference for this chapter require discussion of adaptation practices and the term is used throughout the chapter. In the case of the specific instance cited by the reviewer, "Adaptation practices" has been replaced by "adaptation".
17-365	A	8	9	8	10	There might be another time scale: Adaptation to/coping against past climate-related events/stimuli. Through ancestral behaviour, people indeed learn from past coping activities and enrich adaptation to current climate variability. However, it might be necessary to reflect on past coping history, just to flag the importance of examining the indigenous knowledge and coping practices. (accordingly, please reflect the changes in Figure 17.1). (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Learning from past adaptations is now mentioned in the third paragraph of 17.2.1
17-366	A	8	9	8	10	It would be useful to have a sense of the balance of work and knowledge generated on these three aspects. (Mark Pelling, King's College London)	The relevant literature for the three levels is detailed in the following section (i.e. 17.2.2)
17-367	A	8	9			(figure 17.1 instead of Figure 1) (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Done.
17-368	A	8	9	8	10	"The responses across the three levels are closely intertwined, and indeed might form a continuum." - Is this really true for all cases? This statement has implicit in it the assumption that future climate change would be an extension of past trends, variability and extremes - this assumption may or may not be true. (Upasna Sharma, Indian Institute of Technology, Bombay)	The statement now reads "the responses across the three levels are <i>often</i> intertwined".
17-369	A	8	9	8	9	should be figure 17.1 (Mark Tadross, University of Cape Town)	Done.

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17-370	A	8	10	8	12	One of the most convincing references for the idea of adapting to existing variability is Ribot et al 1996.; see also comments no. 53 and 85 on this topic (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	The reference has now been added.
17-371	A	8	12			Add references to the end: Goklany (1995, 1999a) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Goklany 1995 added. Goklany 1999a (according to the reviewer's overview note) is a paper entitled "The Future of the industrial System". A keyword search revealed no references even to adaptation in the paper.
17-372	A	8	12	8	13	It would be clearer to say: "Analyses also indicate that the risk of impacts can be reduced significantly by early adoption of 'no-regrets' measures ... (Michael MacCracken, Climate Institute)	Section has been rephrased.
17-373	A	8	13	8	20	There is a larger literature on the subject of "regrets" in the ex-ante, ex-post planning literature. Generally speaking, in that context, a no regrets option is associated with planning a measure (for example a water storage reservoir or water markets), ex ante, for climate variability/climate change that does not occur, ex post. The planned option is a no regrets option, strictly speaking, if the "measure" produces ex post benefits in this case. This might be true, for example, for water markets, but how can it be true for measures, the benefits of which depend on climate variability or climate variability, such as the storage capacity of a reservoir? It's also a little like the double dividend case, where from the perspective of economic theory, you can only get a double dividend if you use a "second-best" base case as the reference. In that case, you can also get no regrets results for measures whose benefits that do depend on climate change. Since I have never seen the discussion of no regrets in the climate change literature (Callaway, 1994, might be an exception) refer back to the more general planning literature on this subject, I think the main point is to suggest somewhere this needs to be done. (John Macintosh Callaway, Forskningscentre RISØ)	Text now restructured and reference to "no regrets" is no longer there. The discussion now refers to synergies and conflicts between adaptation and social/development priorities. Discussion of the more general (non climate) planning literature on "no regrets" not feasible in this section given the tight page limits.
17-374	A	8	13			Avoid using the word "cope" here - it has a short-term implication following several authors (Davies, 1996 etc.) and is particularly misplaced in a sentence	Section has been rephrased.

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						referring to long-term change. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-375	A	8	14	8	14	I would suggest replacing "manifest themselves through" by "first become evident as" (Michael MacCracken, Climate Institute)	Text has been restructured and “manifest themselves through” has been removed.
17-376	A	8	15	8	15	Replace "might in addition" by "is likely to also" (Michael MacCracken, Climate Institute)	Text has been restructured and “might in addition” has been removed.
17-377	A	8	19	8	19	Replace "creeping" by "slowly building" (Michael MacCracken, Climate Institute)	Text has been restructured and “creeping” has been removed.
17-378	A	8	20			Add additional examples to the end of last sentence: "... taking measures to improve the efficiency of land use for agriculture which would simultaneously increase food production, reduce the likelihood of hunger, and limit habitat loss, thereby conserving terrestrial biodiversity, and carbon sinks and stocks (Goklany 2000, 2005b). Similarly, improving the efficiency of agricultural water use would likewise limit hunger and help limit water shortages while conserving freshwater biodiversity (by limiting diversion of freshwater uses to human needs; Goklany 2005) ." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Not clear how these measures are going beyond coping with current climate risks and explicitly taking scenarios of long-term climate change into account. The examples mentioned in the text are more appropriate to exemplify cases where forward looking responses might need to factor in scenarios of long term change (e.g. long-lived infrastructure, creeping impacts such as permafrost melt and glacier retreat).
17-379	A	8	22	8	22	Figure 17.1. Doesn't detection of climate change and the reliability (errors in) of climate projections play a role in here somewhere? Individuals can adapt to climate change partially without detecting it, but if projections are reliable or climate change can be detected, then long-run adaptations can be undertaken with less risk? (John Macintosh Callaway, Forskningscentre RISØ)	Adaptation to “observed” trends, does imply that such trends or their impacts are “detectable” e.g. glacier retreat, loss of snow cover etc.. Perhaps the reviewer means “attribution”[to climate change]. If so, it is not clear why attribution should matter for adaptation – individuals and systems might need to adapt to observed/detectable change irrespective of its attribution. Nepal has to respond to expansion of hazardous glacial lakes, while the Alpine winter tourism industry is already responding to reduced

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							<p>snow cover, irrespective of the attribution issue.</p> <p>With regard to the reliability of future projections, it should in principle play a role when such projections are used as basis for decisions. The point here is simply to document examples of observed behaviour, and as illustrated in 17.2.2 there are now examples of observed behaviour (adaptations) in response to observed trends [e.g. artificial snowmaking in the winter tourism sector], as well as of policies (e.g. coastal setbacks) and projects (infrastructure) that take scenarios of future climate change/sea level rise into account.</p>
17-380	A	8	22	8	24	<p>On Figure 17.1. The figure shows adaptation to changes projected by scenarios. But there is a critic opinion by Pielke's group on the scenario-oriented approach. They claim that their vulnerability approach is more appropriate than the scenario-based approach in the present condition where local responses due to a number of climate factors are impossible to accurately assess (Kabat, P., Claussen, M., Dirmeyer, P.A., J.H.C. Gash, L. Bravo de Guenni, M. Meybeck, R.A. Pielke Sr., C.J. Vorosmarty, R.W.A. Hutjes, and S. Lutkemeier, Editors, 2004: Vegetation, water, humans and the climate: A new perspective on an interactive system. Springer, Berlin, Global Change - The IGBP Series). As they point out, the scenarios of IPCC show plausible ranges of average temperature increases, but the scenarios are too rough to get plausible information on local changes due to future climate changes. I had a chance to see an impressive result of Pielke's group; they showed that vegetation changes in Australia altered precipitation patterns while another research group claimed that the increase in CO2 concentration was responsible. Both the results are informative and worth to consider, but policies brought from the results are very different. If one wants to control the precipitation pattern at that place, one</p>	<p>The point here is not to pass judgment of the relative merits of the “scenario” vs. “vulnerability” approaches, as the reviewer puts it, but rather to simply document observed behaviour. And, as discussed through several examples later in 17.2.2 there are in fact cases of adaptation practices – both policies and projects – where scenarios of future climate change have been taken into account.</p> <p>The vulnerability approach has also been discussed in this chapter – in fact several examples in the new Table 17.2 are about enhancing community resilience (or reducing vulnerability) in the face of current climate, as</p>

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						can ask which should be considered, to decrease CO2 or to modify the vegetation. When the vegetation scheme is correct, the answer is undoubtedly the latter. Even if to reduce CO2 concentration will have some effect on the precipitation, the efficiency of the policy is totally different (of course!). Thus, as far as the local policy is concerned, the standpoint of Pielke's group based on the local eye is much more realistic and efficient than the policies directed by the global scenarios. In other words, the global scenarios are too coarse to be applied to local issues. In a sense, this is a matter of course because the grid employed in GCM calculations is too coarse to get local information. Also, the GCM calculations cannot be very accurate because they include not all factors possible (e. g. unknown causes of large decadal oscillations such as Pacific Decadal Oscillation and Arctic Oscillation). (Kiminori Itoh, Yokohama National University)	well as long term (if uncertain) climate change.
17-381	A	8	22			Figure is not very helpful. The left half has no clear time (nor spatial) scale; the right half is intuitive, but is it adaptation to scenarios or adaptation to the projected change itself. You could argue that it is adaptation to scenarios (a kind of "feed forward" process, if action is taken prior ...) but action could also be contemporary with future climate. (C. Gregory Knight, Pennsylvania State University)	The left half is simply there to reinforce the point that adaptation measures are seldom taken in response to climate considerations alone, but as part of responses to a broader range of considerations. With regard to the question about whether it is "adaptation to scenarios or adaptation to projected change", the reviewer's point is not quite clear. The intent here is to indicate that there are now examples of observed behaviour where scenarios of future climate change have been taken into account, both in policies (e.g. coastal setbacks) and at the project level (e.g. design of infrastructure, as detailed later in this section).
17-382	A	8	22	8	23	How dissimilar are "adaptation to observable climate trends" vs. "adaptation to current climate variability" in both nature of the stress and the response? (Liza Leclerc, UNEP)	The two are closely linked, as stated in the text. However, the observable climate trends category captures practices to respond to "creeping" climate risks such as steadily rising

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							temperatures, glacier retreat, permafrost melt etc..
17-383	A	8	25		27	missing 17.2.2 or mis-setting the sub-sub-section title? (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Fixed.
17-384	A	8	26			item 17.2.2 is missing (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Fixed.
17-385	A	8	27	9	29	Very little on social collective behaviour is found here, which is generally employed in case of coping with slowly onsetting disasters/hazards. People in a community, despite being relatively less organized, often come forward to help each other. Such collective efforts are key elements of social capital, observed in many countries in the past. This should have been highlighted in examples of adaptation practices. Line 35, sentence starting with "In many cases": This is linked with ancestral behaviour and knowledge. If the 'information on anticipated climate risks' are beyond the scope of ancestral behaviour and knowledge regarding coping, people tend to rely more on 'reactive adaptation'. Such practices are often short lived and primarily aiming at coping, not adaptation. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	The discussion in this paragraph only outlines some illustrative proactive and reactive adaptations. The role of social as well as more institutional mechanisms in facilitating adaptation is illustrated through various examples in the remainder of the section (including a new Table 17.2 that also includes community level adaptations).
17-386	A	8	27	8	13	An Africa example. could be helpful given the vulnerability of the continent. Apart from the Nepal e.g. section 17.2.3 is very much developed world oriented. (Pauline Dube, University of Botswana)	Examples from Botswana and South Africa are now mentioned in the new Table 17.2 on adaptation practices. In addition , the discussion on Adaptation Costs and Benefits now has two case studies from Africa (Agriculture in The Gambia, and water management in South Africa).
17-387	A	8	27			Numbering problem: No section 17.2.2 (John Morton, Natural Resources Institute, University of Greenwich)	Fixed.
17-388	A	8	27			Section 17.2.3 - Other than the classification of adaptation practices based on "reactive and pro-active approaches" and "purposefulness (table 17.2)" it might be useful to classify and summarize the examples of adaptation practice on the basis of timescales given in figure 17.1. For example, the infrastructure examples could be	The general structure of the new 17.2.2 (old 17.2.3) does follow the same sequence, with first examples of adaptation practices to current climate (incl. ENSO), then examples

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						fall under the categories, 'adaptation to scenarios of projected climate change' or 'adaptation to observed climate trends', whereas the seasonal forecasts and early warning systems could fall under the category 'adaptation to current climate variability and extremes'. Presenting the examples on adaptation practice under such a classification might also help in reducing the length of this section. (Upasna Sharma, Indian Institute of Technology, Bombay)	of practices in response to observed medium/long-term trends in climate, and finally examples of policies and measures that take scenarios of future climate change into account.
17-389	A	8	27	13	13	The section 17.2.3. is good in bringing together current and future climate risk management approaches as part of the adaptation discussion and highlighting some concrete examples. However, too much emphasis is placed on infrastructure solution versus efforts aimed at addressing vulnerabilities in other sectors, such as agriculture. There is broad range of projects addressing climate risks and adaptation currently executed or supported by the World Bank. For example, a recent publication by W. Vergara (2005) outlines a range of World Bank activities being carried out in the Latin American and Caribbean region. In general there should be a broader recognition of adaptation activities in a range of sectors and stronger emphasis on developing country activities. In Peru, for example, there are currently a variety of national and international activities underway, which address a range of climate issues ranging from El Nino to glacial melt. (Frank Sperling, The World Bank)	The discussion on adaptation practices has now been broadened considerably (incl. winter tourism, rural livelihoods, agriculture, drinking water, heat wave alert plans, etc.). See generally the new Table 17.2 and the examples throughout 17.2.2
17-390	A	8	27	13	13	In this sub-section readers should get information of: historically and recently what practices are effective for climate change? Within them, which ones consider climate change and which ones do not? What principles of adaptation we should follow in terms of climate change? What/which practices will be work on the adaptaion to future climate change? The examples are too detailed and typical to be repeated. What we need is the common functions of the example, telling the readers what should be done and what we are going to do under climate change. It needs a summary. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	The purpose of this assessment is to assess the published literature, not to do a first hand evaluation of specific practices. The text does refer to published evaluations of adaptation to ENSO (particularly the 1997-98 event) which highlighted several barriers to adaptation. If the reviewer can point to literature which addresses the questions he/she has posed, we can consider such literature and summarise its results.
17-391	A	8	27			"Section 17.2.3 comment: The section mainly presents adaptation practices in infrastructure with little mention adaptation practices in agricultural sector and water use which are more critical for poor rural people in developing countries. I	The discussion on adaptation practices has now been broadened considerably (incl. winter tourism, rural livelihoods, agriculture,

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						<p>would like to provide the following information: There have also been a growing number of local and provincial initiatives and programs underway in China that address various aspects of the water shortage problem, such as comprehensive water use planning, pay for water systems, and water pricing to limit water consumption. Meanwhile, government established policies for water recycling, pollution control and water-efficient technology to improve water use efficiencies in industries and farming. For example, the Ministry of Water Resources introduced the first pilot project to build a water-saving society in Zhangye City located in the Heihe region in 2001. Some adaptation measures were introduced to the region including overall water supply control, water permits, water right certificates, farmer water use association, water pricing adjustment, and better water allocation policy. Preliminary results of the pilot project have shown some positive effects in dealing with water shortage problem.</p> <p>References: ZhangYe Municipal Government (ZYM), 2002. A Pilot Implementation Plan to Build the ZhangYe City Water-saving Society. Government Document, ZhangYe City, Gansu Province, China. (in Chinese) Xu, P. 2002. "Water saving options and measures in mid reach irrigation areas of the Heihe River Basin" China Hydraulics 8. (in Chinese) "</p> <p>(Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)</p>	<p>drinking water, heat wave alert plans, etc.). See generally the new Table 17.2 and the examples throughout 17.2.2</p> <p>With regard to the specific examples mentioned by the reviewer, we have not been able to access the literature referred to. If we can get the full papers, ideally translated, they can be considered in the next iteration.</p>
17-392	A	8	29		40	<p>Wait & see - reactive approach is inefficient in dealing with non-linear change; explain how and what the alternatives are. Also discussion here needs to fit with main message in the exec sum - i.e. how dealing with non-linear change and irreversibilities relate to limits of adaptation (Jan Corfee-Morlot, University College London & OECD)</p>	<p>Wait and see approach can significantly increase adjustment costs or make adaptation impossible in the face of non-linear change. A fuller discussion of non-linearities and surprises would be covered in chapter 19.</p>
17-393	A	8	29	8	31	<p>May I suggest that you avoid these eye-glazing generalities and get to a more punchy point to introduce paragraphs. The sentence in lines 38-40 is the real message. (Ian Noble, The World Bank)</p>	<p>Disagree – overview of some generic proactive and reactive adaptations is necessary. However, the subsequent discussion has been tightened and streamlined.</p>
17-394	A	8	29	8	30	<p>Since a "growing body of evidence and documented practice on adaptation actions"</p>	<p>This text is no longer there following a</p>

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						is mentioned here, it would be useful for the reader if a list of references could be included. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	restructure. However para 2 of Section 17.2.2 in the Second Order Draft (as well as a new Table 17.2) do provide a number of references of relevant literature.
17-395	A	8	29	8	40	In terms of pro-active adaptation, it seems important to acknowledge in some way that much of activity around the world today that could, under the definitions outlined here, be classified as adaptation to current climate variability is happening under the banners of sustainable livelihoods, human and rural development. (As we know, successful community development activities in the Sahel, just as an example, are almost invariably increasing the capacity of highly vulnerable people to cope with climate variability and extremes. This is perhaps too obvious a point to warrant much place in the literature, and yet it is important that these two communities (development and adaptation) come closer together. And of course, we see that they are coming closer together, in the sense that the development and even natural resource management communities increasingly "get" adaptation. It's less clear in my opinion that the adaptation community broadly appreciates the role of these others.) While it is clearly not the role of Fourth Assessment Report to chart new territory on this issue, it would seem remiss for this chapter not to articulate the growing cohesion in the goals of these communities, particularly with regard to adaptation for highly vulnerable groups. (Erika Spanger-Siegfried, Union of Concerned Scientists)	The inter-linkages between the climate and development agendas are discussed 17.4.1 . Also, new examples in Section 17.2 (e.g. table 17.2) discuss adaptation practices within the context of sustainable livelihoods, rural development and other priorities.
17-396	A	8	29	8	40	This paragraph is very closely linked to disaster risk management, but there is basically no mentioning of the increasing emphasis on preventive measures in disaster risk management. Everything is coined in the climate change terminology. It would be good to more clearly establish the link with the ongoing work in the area of disaster risk management and also recognize the different use of terminology. (Frank Sperling, The World Bank)	A number of examples of both proactive and reactive adaptations that are mentioned, in fact, relate very closely to disaster risk management. E.g. under proactive measures ... seasonal forecasting, famine early warning systems, insurance; and under ex poste – emergency response, disaster recovery, and migration. Different uses of terminology by the climate change and disaster risk management communities, while clearly important, is not the focus of this introductory

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							paragraph on adaptation practices.
17-397	A	8	31		33	Here, finally, some concrete strategies, but the proactive could precede the reactive? (C. Gregory Knight, Pennsylvania State University)	Done
17-398	A	8	31	8	33	It would be clearer to say "This section includes description and assessments of primarily reactive or ex-poste adaptations, for example, migration, emergency relief, and other responses that are relatively proactive to ..." (Michael MacCracken, Climate Institute)	Sentence no longer there following a restructure of this paragraph.
17-399	A	8	35		40	Communities or households may adapt to change by finding alternative methods of adaptation before a reactive process takes place. Often the failure by central government or local government to react to drastic changes causes reactive response by individuals. (Shem Wandiga, University of Nairobi)	Not clear how this comment changes the discussion in the paragraph. No supporting literature provided for the motivations for reactive responses by individuals (e.g. failure by central government).
17-400	A	8	38	8	40	Sentence "...recent reviews indicate that a 'wait and see' ..." is very good and important - it is making a clear statement that adaptation needs to happen now in a conscious way (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Okay.
17-401	A	8	39		40	it is unclear what is meant by "coping with ... long-lived investments and infrastructure" (Susanne Moser, National Center for Atmospheric Research)	Done (sentence rephrased).
17-402	A	8	40	8		Moving from a reactive (humanitarian relief) towards a proactive (disaster risk reduction orientation in risk management is at the heart of current work in disaster risk management. This should be acknowledged, a key reference in this debate is UNDP (2004) Reducing Disaster Risk: a challenge for development, UNDP-BCPR, Geneva and New York (Mark Pelling, King's College London)	The current text does highlight the importance of moving from reactive (wait and see) to proactive adaptation. (para 1 under 17.2.2 Government Review Draft). A number of examples of both proactive and reactive adaptations that are mentioned, in fact, relate very closely to disaster risk management. E.g. under proactive measures ... seasonal forecasting, famine early warning systems, insurance; and under ex poste – emergency

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							response, disaster recovery, and migration. A deeper discussion of managing disaster risks, while clearly important, is not the focus of this introductory paragraph on adaptation practices.
17-403	A	8		13		" 17.2.3 Examples of adaptation Practices" Comment: this section is weak, as the examples are mostly based on infrastructure interventions and focus too much on developed countries; please also include measures implemented in developing countries in the following sectors and areas of intervention: food security/agriculture, water management, health, and community-based adaptation; see AIACC project. (Bonizella Biagini, Global Environment Facility)	The discussion on adaptation practices has now been broadened considerably (incl. winter tourism, rural livelihoods, agriculture, drinking water, heat wave alert plans, etc.). See generally the new Table 17.2 and the examples throughout 17.2.2. Two AIACC project case studies are highlighted in boxes in Section 17.2.3 on Adaptation Costs and benefits.
17-404	A	8				Figure 17.1 - while this figure has an important message, it is not coming across well. The figure does not demonstrate well how adaptation cuts across time-scales and other priorities as indicated in the title of the figure. It may be necessary to separate the three types of adaptation into different boxes or create a more complex representation by using more boxes in order to capture this concept. Otherwise a figure is not necessary (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	The vertical bi-directional arrows within the Figure are intended to illustrate precisely that adaptation (often) cuts across time-scales. In fact, separating the types of adaptation into three boxes might convey the opposite message.
17-405	A	9	0	13		The chapter would be strengthened if a few more examples from developing countries like Africa were included. I do not know why the CLIMAG project has not been mentioned as a good example? I am sure there must be an example in Latin America, especially the work being done in Argentina and /or Brazil. (Shem Wandiga, University of Nairobi)	Examples from Botswana and South Africa are now mentioned in the new Table 17.2 on adaptation practices. In addition , the discussion on Adaptation Costs and Benefits now has two case studies from Africa (Agriculture in The Gambia, and water management in South Africa).
17-406	A	9	1	9	1	The date provided here may be debatable. For instance, in Bangladesh proactive practices to adapt to climate variability have advanced since late 1960s. Suggestion: better to keep the date vague (something like, the second half of past century).	Done (changed from “since the late 1980s”to “in recent decades”).

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						(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-407	A	9	1	9	3	The early success that Cane et al had on forecasting ENSO events now appears to have been more luck than skill. See for example Kerr, R.A. (2003): Little Girl Lost. Science, 301:286, which documents the inability of forecasters to predict the development of the La Nina phase of the then current ENSO cycle. Unfortunately the predictive capacity referred to in this sentence does not exist. Accurate forecasts of El Nino/La Nina events cannot be made, even a few months in advance. (Lenny Bernstein, IPIECA)	The limits of ENSO forecasting, including the spatial and temporal uncertainties, are now discussed explicitly at the end of the second para of section 17.2.2.
17-408	A	9	1		6	Prediction of climate events at national level may be there. However, mainstreaming such predictions at the local community and individual levels to effect proactive practices is missing in developing countries. Secondly, institutional proactive practices have not been adopted by most developing countries institutions. Caution should be made not to over generalize this point. (Shem Wandiga, University of Nairobi)	The constraints to the use of climate predictions, particularly in developing country contexts, are now discussed explicitly in the last few lines of the second para in 17.2.2.
17-409	A	9	2	11		"from section 10.2.2 to section 10.2.3 comment: the two sections present too much information which may already presented in WGI report. A very brief summary will be enough." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	This is a chapter 10 comment, not for Ch 17.
17-410	A	9	5			Ziervogel, G., 2004: Targeting seasonal climate forecasts for integration into household level decisions: the case of smallholder farmers in Lesotho... (Erika Spanger-Siegfried, Union of Concerned Scientists)	Done
17-411	A	9	6	9	11	In Meinke et al (2001) you can also find good examples for the agricultural sector (Meinke, H., W.E. Baethgen, P.S. Carberry, M. Donatelli, G.L. Hammer, R. Selvaraju, C.O. Stockle .2001. Increasing profits and reducing risks in crop production using participatory systems simulation approaches Agricultural Systems 70: 493–513) (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Done
17-412	A	9	11			An outstanding example of changing farming behavior in anticipation of El Nino comes from Northeast Brazil. A. Magalhaes should contribute the most recent literature.	A 2003 paper by MC Lemos on use of climate forecasting and drought relief in Nordeste is now cited in the text.

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						(Jurgen Schmandt, Houston Advanced Research Center)	
17-413	A	9	13			And - are they working? Or which ones are working better than others? (Ian Noble, The World Bank)	Done. The key points on barriers to use of forecasts are now discussed in the text.
17-414	A	9	15	9	19	Are there any more examples of adaptations to observed trends in climate ? Otherwise this seems slightly weak as the only example. I don't know of any personally but maybe there are published examples of the Inuit adapting in the Arctic for example ? (Mark Tadross, University of Cape Town)	Done. Several examples of adaptation to observed trends in the winter tourism sector are discussed. Also, table 17.2 documents other adaptation practices.
17-415	A	9	21		46	The discussion and graphic is intuitive, but lacking a concrete (no pun intended) example, it is not clear that the cost curve is necessarily higher with climate change; one could posit that some repair and maintenance might decrease...a prosaic example might be repairs caused by freezing in marinas in northern vacation lake areas that would no longer occur if the lake didn't freeze in winter. (C. Gregory Knight, Pennsylvania State University)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-416	A	9	21	9	29	The logic of this argument is not apparent. It appears to imply that all infrastructure is built at the same time and that no new infrastructure will be built and that everything will decay in parallel with the onset of climate change. Considering that things like war may have a much more rapid contribution to destroying infrastructure, should this paragraph really be kept? I would suggest that this entire paragraph be condensed into one sentence. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-417	A	9	27		28	it is unclear what is meant by the term "more significant" (important? expensive? severe?) - need to clarify. Also: aren't climate change impacts on infrastructure near the end of their expected lifespan less severe economically - because you have exhausted their expected design life and when you rebuild or repair them, the cost of adaptation is absorbed in the process. Much tougher to find out your tremendous investment in infrastructure was a waste of money right after it was built.... (Susanne Moser, National Center for Atmospheric Research)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-418	A	9	27		28	I am not sure that the statement 'climate change clim ch impacts with therefore also be more significant just when it is reaching the end of its life' can be justified (the grammar is also awful in this sentence!). It could be argued that this is the right	Cost curve discussion is now removed following concerns expressed by several reviewers.

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						time for clim ch impacts to be built into infrastructure replacements. Arguably impacts would be greater, and more costly to deal with, if infrastructure still had many more years to live. (David Thomas, University of Oxford)	
17-419	A	9	27	9	46	This assumes that climate change is gradual, and that infrastructure has a fixed life-time. The figure also assumes that the life-time is 100 years. These assumptions are quite peculiar. (Richard S.J. Tol, Uni. Hamburg)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-420	A	9	28	9	28	Would be clearer if replace "it" by "the infrastructure" (Michael MacCracken, Climate Institute)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-421	A	9	46			Figure 17.2 does not have a y-axis scale or legend. Is this correct? (Richenda Connell, Acclimatise)	Cost curve discussion is now removed following concerns expressed by several reviewers.
17-422	A	10	0			This box is useful and we finally get a developed example of an adaptation, as are the subsequent pages (C. Gregory Knight, Pennsylvania State University)	ok
17-423	A	10	1		30	For box 17.1, the example is more related to disaster reduction than to climate change though climate change is one of the most important causes of the disaster. The project focused on saving power station, villages, pepole's lives and properties. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Since climate change (as the reviewer notes) is an important cause of the increasing disaster risk, the example is both disaster risk reduction and illustrative of adaptation to climate change.
17-424	A	10	4	10	29	Box 17.1 could be summarised outlining the salient points on Risk Reduction to keep within the maximum page length. (Maggie Opondo, University of Nairobi)	Not necessary yet, especially given the interest in the example from other reviewers. Can be tightened in a subsequent iteration.
17-425	A	10	15			Who is 'HMG'? (Richenda Connell, Acclimatise)	Fixed
17-426	A	10	15	10	15	Abbreviation (HMG) not indicated in full. (Maggie Opondo, University of Nairobi)	Fixed
17-427	A	10	15			define HMG (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Fixed

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17-428	A	10	15	10	15	HMG not defined (Mark Tadross, University of Cape Town)	Fixed
17-429	A	10	25			What does reducing the risk "by 20%" mean? Per year? Ever? (Ian Noble, The World Bank)	20% GLOF risk reduction, relative to the original lake level.
17-430	A	10	28	10	29	Are there any numbers for these costs ? It would make the message much stronger if they were included (Mark Tadross, University of Cape Town)	No numbers available for costs.
17-431	A	10	30	10	30	For the Box 17.1, the source is provided as Agrawala et al., 2003. I believe, the figure and the text drew heavily from Mool, P. and others' work. Citation should be correct. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Mool et al. (2001) focussed primarily on risk mapping, and do not document all aspects of the risk reduction project discussed here. The Second Order draft now has both references.
17-432	A	11	2	11	16	A good e.g. but cut down on details o design (Pauline Dube, University of Botswana)	Done
17-433	A	11	2		16	This section could also present another coastal example, e.g., Maine's unique coastal setback requirements which depend on future projections of sea-level rise; this is a unique case US-wise. (Discussed in the Moser 2005 reference provided above). (Susanne Moser, National Center for Atmospheric Research)	Done
17-434	A	11	2	11	16	Is this meant to be linked to fig 17.2 (if so it is not a good example) or is a completely separate point being made - ie simply about CC scenarios being taken into account. (Ian Noble, The World Bank)	Separate point about cc scenarios being taken into account.
17-435	A	11	2	11	47	Can be summarised by highlighting the key elements of adaptation to keep within the maximum page length. (Maggie Opondo, University of Nairobi)	Examples have been tightened, but their specificity and range is necessary to document the adaptation measures that are in place.
17-436	A	11	18	11	37	Another good e.g. But there is also need to reduce detail (Pauline Dube, University of Botswana)	Examples have been tightened, but their specificity and range is necessary to document the adaptation measures that are in place.
17-437	A	11	18	11	26	As example where ongoing planning is incorporating scenarios of climate change in project design is mentioned the Thames Barrier in the UK. However then, in the same paragraph it is stated that "Climate change was not an explicit consideration	The confusing part of the discussion has been removed.

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						and it was a non deliberate adaptation" ?? It is a little confuse. Maybe in the first part of the paragraph could be cited the Thames Estuary instead of Thames Barrier?? (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	
17-438	A	11	19			and passim: Qinghai not Qinhai (John Morton, Natural Resources Institute, University of Greenwich)	Done
17-439	A	11	23			high standard' is not the right terminology to use here (David Thomas, University of Oxford)	Text removed.
17-440	A	11	24			"non-deliberate adaptation" is a grand new invention, that will likely solve all our problems. The Thames Barrier was to built higher than strictly needed for reasons other than sea level rise; to call this adaptation to climate change is plain nonsense. (Richard S.J. Tol, Uni. Hamburg)	Text removed.
17-441	A	11	25			"non deliberate" adaptation - is it really necessary to introduce a new typology of adaptation? I don't think this requires inverted commas as this highlights it unnecessarily; it is also somewhat inconsistent with the previous comment that (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Text removed.
17-442	A	11	25	11	25	"..The"(omit .) (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Text removed.
17-443	A	11	27			coming down the Thames' is not very scientific: fluvial flows' always come down, they never flow up. (David Thomas, University of Oxford)	Text removed.
17-444	A	11	37			It would be interesting, and informative, to also document that countless long-lived projects are currently built WITHOUT accounting for climate change, sea-level rise etc. That, too, says a lot. And I think is a necessary complement to reflect adequately the situation. You are sending a message that "all is well with adaptation - we're doing it, it's not a problem", and that is factually wrong. This could also be added at the end of this section (p.13, after line 13); for every pro-active measure that is being taken, there are countless missed opportunities to do so elsewhere. (Susanne Moser, National Center for Atmospheric Research)	The text does mention that there are only a limited number of examples where climate change is being considered in long-lived projects. Evidently then, a majority of projects do not.
17-445	A	11	39		47	Is there a better e.g.? I have felt that the issue of permafrost melting, climate change and railway interaction in this paper is a red herring. Regardless of climate change, the railway will impact on permafrost stability, and insulation would be needed. There have	The sentence is now rephrased to point to the impact of the railway line itself on the stability of the permanent layer, which will also be

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						been similar issues with highways, railways and pipeline in eg Alaska for many years. (David Thomas, University of Oxford)	impacted by rising temperatures.
17-446	A	11	41	11	41	"railway, scheduled for completion in 2007 cross ..." is the old reference. In fact, the railway was built in the end of 2005. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Done
17-447	A	11	44	11	47	And this will help against climate change? (Richard S.J. Tol, Uni. Hamburg)	The risks would be <i>reduced</i> as a result of these measures.
17-448	A	12	0			The paragraph does not convey a clear message. Also, check sentences from line 17 onwards... (Frank Sperling, The World Bank)	Comment not clear. The para in question simply highlights some illustrative adaptation practices that are being put in place.
17-449	A	12	8	12	9	Delete Table 17.2? Added value not evident to point being made. Last column: would need to explain why you are saying that implementing adaptation and building adaptive capacity AREN'T the same. Could enrich section by illustrating "continuum" shown in Table 17.1 with an example here. (Liza Leclerc, UNEP)	Done
17-450	A	12	8			Table 17.2 - Same comment as no. 31 - is it really necessary to introduce an additional category for adaptation. Isn't planned and unplanned sufficient? While non-deliberate captures a sense that something was undertaken that had an effect of adaptation, this could also be the case for unplanned adaptation. Furthermore, unplanned adaptation would differ from non deliberate adaptation in that the former may not be planned, but is still an act of adapting, whereas non deliberate gives the impression that you are almost actively struggling NOT to adapt. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Table deleted.
17-451	A	12	8			Table 17.2. In example of Unplanned (non deliberate) "UK Railincorporates scenarios consistent with climate change" ?? Confuse (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Table deleted.
17-452	A	12	15	12	16	The list of counties is biased (intentionally??), you could include India (2002) for more balance. (Mark Pelling, King's College London)	Could not locate reference to India (2002), not provided by reviewer. However, discussion of heat wave alert plans is now broader and includes cities such as Shanghai.

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17-453	A	12	18	17	30	"section 10.2.4 comment: this section mainly presents the impacts of climate on key sectors and some major concerns of the region. It should also present the vulnerability and adaptation studies. Please refer to Chapter 17 of AR4 for examples." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	For action by Chapter 10.
17-454	A	12	19			Larry Lalkstein and Scott Sheridan have also written extensively about heat-health warning systems, in the US, Europe, and Asia, I believe - these should also be cited here. (Susanne Moser, National Center for Atmospheric Research)	Done.
17-455	A	12	21	13	13	Can be summarised by highlighting the key elements of adaptation to keep within the maximum page length. (Maggie Opondo, University of Nairobi)	Examples have been tightened, but their specificity and range is necessary to document the adaptation measures that are in place.
17-456	A	12	29	13	4	A number of key points are raised here and should appear in Exec sum &/or conclusions - i.e. key features of adaptation option assessment (end p. 12 and beginning p. 13) and a refinement of adaptation options into categories such as managerial innovations, infrastructure decisionsmaking and policy changes - these notions could be further developed and used elsewhere throughout chapter. (Jan Corfee-Morlot, University College London & OECD)	Exec Summ has now been revised.
17-457	A	13	7			"...be implemented quickly is a tightening of drought regulations..." - rather than drought, maybe this should say water use regulations (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Done
17-458	A	13	16	21	50	Sub-section 17.2.4. To my mind, the methods of assessment of adaptation practices should ideally be a part of the chapter on "Methods and Tools". (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Now the discussion on methods has been reduced from section length to a single box.
17-459	A	13	16			17.2.4 A discussion of the political dimensions of adaptation is missing here. Adaptation is not just a matter of doing a cost-benefit analysis and finding the most appropriate adjustment. Decisionmaking is set within a political structure. Besides, costs and benefits are not neutral - they differ between groups. Decisions regarding adaptation may favour some groups' interests over others. The section lacks a discussion of the people (the 'who', winners and losers) affected by government	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by chapter 2. (the Second Order Draft of Chapter 17 now only has a box on methods)

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						adaptation interventions. It is unclear to me how the three key methods for evaluating adaptation practices have been selected for discussion in this chapter. In particular, qualitative and social analysis type methods seem to be missing. The section gives an impression that a consensus exists regarding what the key methods for such analysis are, but I do not think such a consensus exists. I think the section should discuss all the different methods used with reference to studies in literature, and not spend as much text discussing just a select three. (Siri Eriksen, University of Oslo)	for assessment ---- winners/losers etc can certainly be part of multi-criteria assessments).
17-460	A	13	16	21	50	17.2.4 Some more could be said up front to describe the contexts that may help to decide what may be the most appropriate type of adaptation assessment. The type of vulnerability (e.g. financial loss and human mortality are both outcomes of weather-related disasters but invite very different assessments and responses.), uncertainty (informing the potential for quantification), mix of institutional capacities, socio-cultural background (e.g. as to whether technical methods, or socially moderated discussions may be most appropriate). The methods here seem to lean towards the more technical options. These may not be appropriate for a range of cultural and social groups. "How does a group learn and what tools may they be able to make use of?" is an important question. How a group uses information is, of course, a capacity but it is required to even learn how to adapt to climate change. (Roger Jones, CSIRO)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2 (of which the reviewer is the CLA).
17-461	A	13	16	21	50	This paragraph (17.2.4 Assessment of Adaptation Practices) makes greater progress in the assessment methods of adaptation practices than in the Third Assessment. (Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))	Thanks –but this section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-462	A	13	16			Section 17.2.4 - would be better entitled "Methods for Assessment..." - describes the content better and avoids duplication of higher-order section title. (John Morton, Natural Resources Institute, University of Greenwich)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-463	A	13	16	15	25	I don't find a reference for this section. Do the formulas help?	This box has been removed.

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						(Jurgen Schmandt, Houston Advanced Research Center)	
17-464	A	13	16			In section 17.2.4 and elsewhere the term 'cost-benefit' is sometimes used instead of 'benefit-cost' which should be made consistent, either way. (Mark Tadross, University of Cape Town)	Fixed (cost-benefit is now used throughout).
17-465	A	13	16	13	50	It may be useful to consider where in a project process adaptation takes place. Planning adaptation into a new project is a very different process from adding adaptation to existing practices.. (Graham von Maltitz, CSIR)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-466	A	13	16	15	14	This sub-section lacks citation. It is not a summary of literatures. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-467	A	13	16		49	This part reads like a section of textbook for college students. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-468	A	13	16	17	42	This part has too much introduction related to the theoretical method, less results to their application. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-469	A	13	16	13	16	17.2.4 Assessment of Adaptation Practices(Changed to "adaptation practices") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-470	A	13	17			Section title - this title says very little and does not reflect what the section is about - this is instead about how to determine which adaptation options - selection	This section has now been removed, and replaced by a section focussing on Adaptation

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						methodology and processes (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-471	A	13	19	13	19	Typo? (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-472	A	13	19	13		Delete "to be used". (Bernard Edward Gomez, Department of Water Resources)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-473	A	13	19	13	19	It is not clear what "it" refers to in either of its usages here--does it really mean "assessment of adaptation practices"? (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-474	A	13	19	13	19	"First, it can be used to be use to establish.." (omit "be used to") (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-475	A	13	21	13	23	Phrase beginning with "The third objective -----, as any ancillary effects" needs polishing. (Bernard Edward Gomez, Department of Water Resources)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-476	A	13	21			"ex ante" - needs to be explained (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on

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							assessment methods would in principle be covered by Chapter 2
17-477	A	13	22			"seeks to assess their on" makes no sense (C. Gregory Knight, Pennsylvania State University)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-478	A	13	22	13	23	Change to "their effectiveness in accomplishing the desired goal of reducing ..." (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-479	A	13	22	13	22	A crucial word seems to be missing in the sentence - "...and seeks to assess their ??? on...." (Upasna Sharma, Indian Institute of Technology, Bombay)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-480	A	13	23			..."and seeks to assess their on..." - this sentence makes no sense. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-481	A	13	24		24	We also need to learn in that assessment what helped to realize measures on the ground, so that we can replicate that elsewhere (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-482	A	13	28	13	28	Greenhouse gas mitigation is more effective if coordinated internationally, but it can be undertaken locally if the parties involved can identify no-regrets measures or are willing to bear the expense. Change "which has to be coordinated internationally" to "which is more cost-effective if coordinated internationally."	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be

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						(Lenny Bernstein, IPIECA)	covered by Chapter 2
17-483	A	13	28	13	38	This paragraph makes a policy-relevant statement that goes beyond the scope of an IPCC report and may be misinterpreted. By saying that "unlike GHG mitigation, which has to be coordinated internationally, adaptation to climate change is essentially a local, or, in some cases, a regional issue," this section implicitly states that international regulations are irrelevant to adaptation practices. Even though adaptation measures must be implemented at the local, national and regional levels (by the way, the same concept applies to GHG emission reductions, which occur through the implementation of a sustainable energy and transportation plan/project/intervention), it is incorrect to underestimate international coordination: the implementation of adaptation practices (especially in developing countries) significantly depends on how strong is the political and financial support from the international community, including obligations under the UNFCCC. (Bonizella Biagini, Global Environment Facility)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-484	A	13	28		31	Reference to mitigation here is simplistic - "has to be coordinated internationally" when mitigation, as with adaptation, only takes shape through local and regional actors and investment patterns. Isn't the main difference in the scale of assessment needed to understand the risks and hence the opportunities for action. Whereas for mitigation it has to do with broad patterns of development in adaptation it has to do with micro-scale, geographic context specific exposures and sensitivities to climate change. Also mitigation and adaptation differ in the geographic scale of benefits delivered. I would rework this discussion or at least the ref to mitigation. (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-485	A	13	28	13	38	There are limits to adaptation at the local level (see Næss et al 2005). If adaptation is to address causes of vulnerability, such as marginalisation of groups or deterioration of municipal economic situation and decision-making power, then some interventions clearly have to be made at a higher geographic level, national or even international (where global processes of economic marginalisation are operating, for example). National regulations and policies may have an important impact on local adaptation decisions (Eriksen, Øyen et al 2005); therefore, addressing regulations and policies at the national level represents a form of adaptation.	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2

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Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Siri Eriksen, University of Oslo)	
17-486	A	13	28	13	29	<p>There are a couple of notable exceptions where adaptations are best implemented multilaterally. Goklany (2005b) notes that reductions in agricultural subsidies, despite being detrimental to both the economy and the environment of subsidizing countries (as well as to the economies of their trade partners/competitors), are notoriously difficult to eliminate because of the politics behind the subsidies — which is why they exist in the first place. Because subsidies are part of the arsenal of economic warfare, just as for military weapons, they are, he argues, best disarmed multilaterally (under the auspices of the World Trade Organization). Similarly, the rules governing another adaptive technique, trade, are best formulated, and policed, multilaterally. Other adaptive measures which benefit from multilateral cooperation include the continued operation of global observation and monitoring systems (including early warning systems) and the scientific study of climate change, its impacts, and its response strategies, all of which will help formulate adaptive responses.</p> <p>(Indur Goklany, Office of Policy Analysis, Department of the Interior)</p>	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-487	A	13	28			<p>Is it true that GHG mitigation has to be coordinated internationally? Aren't local initiatives important even if not coordinated more widely?</p> <p>(C. Gregory Knight, Pennsylvania State University)</p>	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-488	A	13	28	13	31	<p>Additional to my very minor comment no. 51 (see above) I suggest to carefully reconsider the wording of this sentence. The sentence might suggest that - different and independent from mitigation policies - adaptation policies are a local (sometimes regional) matter. I doubt it is. Why? First, interlinkages exist between mitigation and adaptation policies and decisions. Second, section 17.4 (esp. pp. 30-32 and pp. 34f.) highlights among other things on international action (where funding is only one aspect of). Third, the cases of early warning systems, health and disease may be examples where adaptation might become a very international issue.</p> <p>(Margareta E. Kulesa, Mainz University of Applied Sciences)</p>	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2

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17-489	A	13	28		29	This sentence seems inappropriately normative, and it inadequately reflects what's actually happening on the ground AND what is needed to make things happen locally or elsewhere. First, mitigation has only to be coordinated internationally if you want to cost-minimize, otherwise why? It's not being coordinated very well now, but happening in fits and burst (small ones) anyway; and much of that trial and error process is good and healthy. So this needs to specify for what goal mitigation needs to be coordinated. I would agree with it more easily if you said something about the fact that as a global problem (addressing a global commons), all emitters have to do their part. Second, much mitigation effort and innovation is currently coming from the local level. Third, even if adaptation will be implemented locally, many many adaptation measures require facilitation, support, and institutional arrangements that are initiated at higher levels of government. So this sentence and paragraph needs fine-tuning. (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-490	A	13	28		38	I am not convinced with the argument that greenhouse gas mitigation is coordinated internationally but adaptation is not so coordinated. Leaving adaptation to be a local affair activity will increase local politics and may deny communities of life saving opportunities. Greenhouse gas emissions are done locally (such as biomas burning, cookin with LPG or electricity) as well as being coordinated internationally. Restricting adaptation coordination to local or national level decision denies communities the benefit derived from international good practices and resources. I am not so sure this is the message the author(s) wants to convey? (Shem Wandiga, University of Nairobi)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-491	A	13	28	13	32	"section 17.2.4 comment: delete these lines upto ... (local authorities or national governments) which have mentioned quite often in the literature." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-492	A	13	29	13	29	"... is essentially a local issue, or in some cases, a NATIONAL OR EVEN regional issue." (Margareta E. Kulesa, Mainz University of Applied Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be

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							covered by Chapter 2
17-493	A	13	30		30	"based on well established" local decision-making"???? Most definitely will we also need new, different, and yet-to-imagine procedures, mechanisms, and maybe institutions to deal with adaptation. (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-494	A	13	31			"public good" in quotes (C. Gregory Knight, Pennsylvania State University)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-495	A	13	33			and passim: standardise on either cost-benefit or benefit-cost (John Morton, Natural Resources Institute, University of Greenwich)	Fixed.
17-496	A	13	34		34	"Other, perhaps most, adaptation decisions will be taken by private agents (individuals and firms)... " - what is the empirical basis for this claim I would argue that many, many adaptation measures cannot be done by individual actors at all, and certainly not cost-effectively or adequately, and instead require major support from social collectives, institutions, and higher levels of government. (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-497	A	13	35	13	38	In terms of sheer number, there are innumerable individual/household-based actors than somewhat sophisticated actors. In decision making, they do not particularly depend on 'investment appraisal techniques' or the NPV analysis. It is necessary to focus how do they reach a decision on coping/adaptation, especially when there are more than one coping/adaptation option for a single exposure to a climate-driven hazard/disaster? What technique do they apply? (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2
17-498	A	13	44			Add something after this paragraph on the implication: favoring no-regrets actions... (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2

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17-499	A	14	0	15	54	BOX 17.2 provides a good explanation of the concept of costs and benefits assessment as applicable to climate change. The first section should have its own caption which I believe should be something like incremental cost assessment. The third section on uncertainties is sufficiently independent and general to form a section in the main body of the text coming after Section 17.2.4.5: Multiple Criteria analysis (James Adejuwon, Obafeme Awolowo University)	This box has now been removed.
17-500	A	14	1	14	8	Insert references of literature reviewed to support Box 17.2 (Pauline Dube, University of Botswana)	This box has now been removed.
17-501	A	14	1	15	53	Box 17.2 I did not find this good value for space used. An IPCC assessment is not the place for basic "text book" material. (Ian Noble, The World Bank)	This box has now been removed.
17-502	A	14	1			still within the box, the section titled 'the timing of adaptation decisions' is very confusing, even though I have a maths background. It may be that I have misunderstood what each variable refers to but I will try and highlight why I am confused. My main recommendation for the section is that 1 or 2 figures are included, illustrating how climate damages vary with time, and defining the variables used in the equation by referring to the figures. This may seem extravagant given limited space, but I do think this is very important for future studies to address and in their current state the equations do not seem useful to me (see next few comments). (Mark Tadross, University of Cape Town)	This box has now been removed.
17-503	A	14	1			Box 17.2 I found very confusing and I think it needs some work. The table does not have a caption/number. I think it could be made clearer by removing 'climate change damage:0' from the second column - this is obvious given that the column refers to current climate and the extra text makes it more difficult for the reader to understand what is being communicated. I also think that numbers for 'incremental adapt cost' and 'incremental adapt benefit' on the 3rd row of the table should have how they were calculated in brackets after the net number e.g 'Incremental adapt. cost: 60 (150-90)' (this will help the reader understand where the numbers come from). (Mark Tadross, University of Cape Town)	This box has now been removed.

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17-504	A	14	1	15		Box 17.2 . Too long and heavy to follow. Maybe a real example could help to clarify?. Also, "Dealing with uncertainty" perhaps should be put in the text as is a general issue. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	This box has now been removed.
17-505	A	14	3	14	21	I am not fully convinced that the "simplistic" numerical example in box 17.2 is a) needed, and b) helpful. At least I experienced more costs than benefits from going through this example. What I am trying to say is, that lines 23-25 can easily be understood without the example. Anyhow, regarding the presentation of the example I would recommend to delete the line "Climate change damage: 0" from second-column-second-row and second-column-third-row. This information may confuse readers but is not necessary for the explanation of the example (lines 9-21). (Margareta E. Kulesa, Mainz University of Applied Sciences)	This box has now been removed.
17-506	A	14	3			"Costing is a key element....." is not harmonious with "non-regret" principle. The most important thing is whether the practice realizes the anticipative objectives of adapataion. Some benefit can not be calculated/ estimated, for example, what is the benefit of saving three people's lives. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	This box has now been removed.
17-507	A	14	8			Box 17.2. No references in this. Should tehre be some?Or is the material in the box appearing for the first time? (David Thomas, University of Oxford)	This box has now been removed.
17-508	A	14	30	14	31	incomplete sentence (John Morton, Natural Resources Institute, University of Greenwich)	This box has now been removed.
17-509	A	14	31	14	31	statements like 'over the lifetime of the project' are not clear whether the reduction is variable during the lifetime of the project or represents the total reduction at the end of the project. (Mark Tadross, University of Cape Town)	This box has now been removed.
17-510	A	14	32	15	21	symbols are confusing; NPVN is actually PVN, DCN0 = DCN(0) ie at time 0, the start? Is delta t the time step or delta*t? (Geoffrey Levermore, Manchester University)	This box has now been removed.
17-511	A	14	32			NPVN should be PVN according to the equation in line 34	This box has now been removed.

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						(Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-512	A	14	32	14	32	statement 'NPVN can be written as' yet the following equation doesn't even have an NPVN in it !! (Mark Tadross, University of Cape Town)	This box has now been removed.
17-513	A	14	32	14	32	"NPVN" should be "PVN" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This box has now been removed.
17-514	A	14	34	14	34	DCN0 not defined. It appears from nowhere. (Mark Tadross, University of Cape Town)	This box has now been removed.
17-515	A	14	36		40	Not clear what DCU signifies - and how it differs from DCM. (Jan Corfee-Morlot, University College London & OECD)	This box has now been removed.
17-516	A	14	39			NPVL should be PVL according to the equation in line 41 (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This box has now been removed.
17-517	A	14	39	14	41	NPVL then becomes', yet the following equation doesn't have an NPVL in it (Mark Tadross, University of Cape Town)	This box has now been removed.
17-518	A	14	39	14	39	"NPVL" should be "PVL" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This box has now been removed.
17-519	A	14	41	14	41	The use of 'delta' to represent both the discounted rate and what I assume is 'delta t', i.e. a small increment of t, is very confusing e.g as it appears twice in the equation on line 41. Maybe I have misunderstood 'delta t' but then it would be helpful to know why 'delta' appears twice in the equation. (Mark Tadross, University of Cape Town)	This box has now been removed.
17-520	A	14		15		notation needs work (subscripts in equations) (C. Gregory Knight, Pennsylvania State University)	This box has now been removed.
17-521	A	15	1	15	53	Box 17.2: interesting. It might be worth noting that discounting affects not only the timing of the measure. In cases where the measure has a capacity that is dependant on the expected climate, like a water storage reservoir, discounting also affects the capacity. This would generally be of instructure investments in general, where higher discount rates might push the investment more into the future and/or reduce the magnitude of the investment. (John Macintosh Callaway, Forskningscentre RISØ)	This box has now been removed.
17-522	A	15	5	15	5	the sum and use of 'delta t' at the end of this equation implies an integral. This may	This box has now been removed.

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						be correct but here it is important to have the explicit definition of DCN and DCL clearly understood, in particular, do they vary in time ? Is it cost per unit time as implied by the summation (but the multiplication by t is then unnecessary) ? Otherwise is DCN/DCL the final cost which is arrived at linearly, in which case t is the lifetime of the project and why the summation ? I am obviously very confused here but I do think that the layperson would benefit from some illustrative figures and a clearer description. (Mark Tadross, University of Cape Town)	
17-523	A	15	23	15	24	The two equations do not make sense to me (see above). One does not imply the other if the summation is an integral over time. (Mark Tadross, University of Cape Town)	This box has now been removed.
17-524	A	15	27		53	It would seem the box should end just before this line; the text following is not part of the discussion of costs and benefits. (C. Gregory Knight, Pennsylvania State University)	This box has now been removed.
17-525	A	15	27	15	53	This section does not seem to fit here - separate box? (Liza Leclerc, UNEP)	This box has now been removed.
17-526	A	15	29	15	29	"level" might be "levels" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This box has now been removed.
17-527	A	15	30		30	PRO-ACTIVE adaptation decisions will be taken under uncertainty. (Susanne Moser, National Center for Atmospheric Research)	This box has now been removed.
17-528	A	15	35			Append to the end of this sentence: "..., provided the cost of action is also not excessive. (Goklany 2001, Tol 2005)." [Tol reference: Tol, RSJ. 2005. Of Dangerous Climate Change and Dangerous Emission Reduction. Symposium on Avoiding Dangerous Climate Change, Exeter, February 1-3, 2005.] (Indur Goklany, Office of Policy Analysis, Department of the Interior)	This box has now been removed.
17-529	A	15	37	15	46	References of examples from developing world need to be added. (Pauline Dube, University of Botswana)	This box has now been removed.
17-530	A	15	38	15	40	Modify the sentence commencing on line 38 as follows: "This includes measures to reduce vulnerability to currently urgent climate related problems that might be worsened by climate change, e.g., improved methods to combat malaria, development of drought-resistant cultivars, improved weather and climate	This box has now been removed.

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						forecasting, early warning systems, (Goklany 1992, 2000)." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-531	A	15	40	15	43	Modify the sentence commencing on line 40 as follows: "Schelling (1992) and Goklany (1992, 1999a) have argued that the best adaptation strategies include measures to stimulate (sustainable) economic development, and advance society's technological prowess and human capital. It is easy to agree that improved public health through improved nutrition, health care, access to safe drinking water and sanitary conditions for the world's poorest households are clear win-win measures." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	This box has now been removed.
17-532	A	15	43	15	46	The need to increase the flexibility and robustness of systems in light of climate change (Fankhauser et al. 1998) should be explored in greater detail in its validity and be part of the main text of the chapter. While it in my opinion a very central issue to climate proofing development processes, it does not get appropriate recognition in the chapter. (Frank Sperling, The World Bank)	This box has now been removed.
17-533	A	15	45	15	45	Should "wide" perhaps be "wider"? (Michael MacCracken, Climate Institute)	This box has now been removed.
17-534	A	15	48		53	This does not account for trade-offs. For example, increased robustness in one system may lead to decreased robustness in a connected but different one. You should help people think in systems terms about robustness and resilience and vulnerability and adaptation. (Susanne Moser, National Center for Atmospheric Research)	This box has now been removed.
17-535	A	16	2			The box 17.2 should follow section 17.2.4.1 The box 17.2 deals with timing of costs and benefits and thus amplifies the discussion in the cited section. (C. Gregory Knight, Pennsylvania State University)	This box has now been removed.
17-536	A	16	2	21		While the subsection on CBA is well written considering the early stage of the production process, the subsections on CEA and MCA could be improved. The CEA is not well explained to a reader who is not familiar with the approach (i.e., how the benefits are measured). The examples which are given in the subsection on MCA (page 21) are not presented in a very convincing way, given the potential of multi-criteria methods if applied correctly. The review also misses to mention that	The methods discussion has now been tightened to a box, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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						<p>particularly for situations with high uncertainties (regarding the future climate development, outcome of decision alternatives as well as weighings for goals and criteria) some methods have been presented in the recent literature which go far beyond AHP and scoring. Examples include, for instance, the Stochastic multi-acceptability analysis (SMAA) methods (a suitable reference may be Lahdelma, R., Hokkanen, J., Salminen, P. 2001. SMAA - Stochastic Multi-objective Acceptability Analysis. European Journal of Operational Research, 106:137-143. Structural uncertainties of multi-criteria methods are usually taken into consideration by applying several methods side by side. Also, the comment that "there is no indication that the results" (...of the presented case studies...) directly influenced decision making is somewhat strange when dealing with climate change policy and adaptation.</p> <p>(Manfred Lexer, Institute of Silviculture)</p>	
17-537	A	16	2	21	50	<p>Note: in page 13 line 18 it wrote "Assessment of adaptaion practices CAN be undertaken to accomplish.....". If the centence were written in ".....SHOULD be....." in stead of ".....CAN be....." this part would have no problem. But because of "CAN be" the authors should indicate readers which analysis is more important and why.</p> <p>(Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)</p>	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-538	A	16	2			<p>"section 17.2.4.1 comment: Need to caution to apply CBA in VIA assessment. The appropriateness of applying CBA for climate change impact analysis has been widely questioned. The underlying philosophy of CBA comes from the concept of potential Pareto improvement. Obviously, CBA fails to take consideration of distribution effects among interest groups or among regions. In CBA, future benefit and cost flows are converted into present values by applying discount rates. Since benefits of adaptation policies will be obtained in the future and all future values are discounted, CBA results may show most adaptation options economically not feasible. Major difficulties also arise in putting a market price on human health and lives. Many decision makers do not feel comfortable with monetary estimates of values of lost human lives, environmental pollution, or endangered species."</p> <p>(Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources,</p>	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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						Environment and Sustainability)	
17-539	A	16	19			World Bank , 2000 : there are two references for 2000, give “ a” and “ b “ to differentiate. i.e World Bank, 200a, World Bank 2000b. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-540	A	16	20	16	21	line 20-21, table 17.3 not 17.2 . However, it is not related to US country studies it is for China, Estonia, etc. not US. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-541	A	16	20	16	21	In Table 17.2 there are no references to the US Country Studies Program. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-542	A	16	21			(Table 17.2) may be (Table 17.3) (Hideyuki Kobayashi, Ministry of Land, Infrastructure and Transport)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-543	A	16	21	16	21	(Table 17.2) - should this be Table 17.3? (Maggie Opondo, University of Nairobi)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-544	A	16	21	16	21	table 17.2' should be 17.3 ? (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-545	A	16	24	16		Table 17.3 not cited in the text (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-546	A	16	31	16	31	I think it would be clearer if changed "certain policy" to "alternative policies" (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-547	A	16	32	21	50	I would recommend to use abbreviations (GVA, CEA, MCA, BCA, MINK, ENSO ...) more sparingly. (Margareta E. Kulesa, Mainz University of Applied Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-548	A	16	32	16	34	Error in citation of table. Table 17.4 refers to agriculture not to coastal adaptation. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Table 17.4 has been removed.
17-549	A	16	33	16	34	this information does not appear to be in Table 17.4 (Mark Tadross, University of Cape Town)	Table 17.4 has been removed.
17-550	A	16	36	16	38	Sentence not clear, more clarification necessary. (Maggie Opondo, University of Nairobi)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-551	A	16	39			the sentence ending with "justified economically" calls for a reference (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-552	A	17	1		3	the sentence ending with "positive results" and the next two sentences also call for references	This section has now been removed, and replaced by a section focussing on Adaptation

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						(Susanne Moser, National Center for Atmospheric Research)	costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-553	A	17	1			Replace like with such as. (David Thomas, University of Oxford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-554	A	17	5			Phrase beginning with "A global study by -----, is more limited" needs to be revisited in the light of the following: the major consideration for adaptation is necessity, and since efficiency is difficult to determine (page 6, lines 4 - 6) more clarification is needed on the methodology used by the author to arrive at this statement. (Bernard Edward Gomez, Department of Water Resources)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-555	A	17	12			The material around here again raises the question: where do adaptations (and adaptation strategies) come from? (C. Gregory Knight, Pennsylvania State University)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-556	A	17	17	17	17	I would suggest changing "with considering" to "while considering the likely implications of" (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-557	A	17	18	17	22	I would consider rewording these three sentences to make them clearer. (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-558	A	17	22			explain in plain language the term "minimax" regret principle (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation

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							costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-559	A	17	22	17	22	"minimax regret principle" needs defining (John Morton, Natural Resources Institute, University of Greenwich)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-560	A	17	26		29	need to mention value judgement often hidden in monetised figures e.g. assumptions used to value nonmarket impacts and to aggregate across different types of goods and commodities, to aggregate across diverse populations and localities, etc. (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-561	A	17	26		29	A report forthcoming from the Aspen Global Change Institute contains a good discussion of the shortcomings of common approaches to economic modeling; this could help beef up this inadequate paragraph. Reference: Moser, Susanne. 2005. Climate Scenarios and Projections: The Known, the Unknown, and the Unknowable As Applied to California. Synthesis Report of a workshop held at the Aspen Global Change Institute, 11-14 March 2004 in Aspen, Colorado, AGCI: Aspen, CO (in press). (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-562	A	17	26	17	29	Good, succinct summary (Ian Noble, The World Bank)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-563	A	17	26	17	26	BCA not defined (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-564	A	17	28	17	28	"provides.....not how...": inelegant sentence construction (John Morton, Natural Resources Institute, University of Greenwich)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-565	A	17	29	17	29	Change "might not" to "is unlikely to" to conform to IPCC lexicon (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-566	A	17	31			"section 17.2.4.2 comment: The cost-effectiveness method attempts to find the cheapest and most effective option of achieving the adaptation goal. However it does not tell you if the expected adaptation benefits justify the costs. Answers to the latter question must rely on informed judgment and common sense." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-567	A	17	33		42	Explain that CEA can be used to examine and compare normative choices about desirable objectives or targets (in qualitative or quantitative terms) and does not require monetisation of such objectives, so in this way is not exactly an alternative to BCA, rather it carries out a different function. (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-568	A	17	34	17	34	I assume "it" means "CEA"? (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-569	A	17	37			"section 17.2.4.2 comment: The Adaptation Decision Matrix is different from the cost-effectiveness method." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-570	A	17	41			Seems to be a heavy reliance on info from Country Studies - are there other supporting sources of literature? (Liza Leclerc, UNEP)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-571	A	17	43			Insert a new para at line 43 as follows: "Using reductions in the magnitude of various climate-sensitive hazards as measures of effectiveness, Goklany (2000, 2003, 2005) has compared cost-effectiveness of various adaptation and mitigation scenarios (e.g. the Kyoto Protocol and different stabilization scenarios) over the next few decades. His findings indicate that for the next few decades, adaptation may be the most cost-effective method to reduce damages from such hazards, even if in the long term mitigation may be inevitable." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-572	A	18	0	18	5	PROBABLY OUT OF DATE: I am in sympathy with the motivation for Table 17.4. However the uncertainties surrounding the heterogeneous nature of the study areas, the climate scenarios (excepting the 1930 analogue) and the effectiveness of the adaptation measures (applied to hundreds of crop varieties in hundreds of ecologies) do not justify the use of specific amounts in dollars and percentage changes in columns 4 and 5. This criticism was valid when the original data were generated and published in the sources used to compile the Table. But then the authors at that time (12 years ago) could be forgiven as scientists were looking for data to convince doubting policy makers that climate change was real. Now, it is easy to punch holes into this type of information and they are likely to do more harm than good. We do not need to carry them into the AR4 since they have been adequately reflected in the TAR. They could now be regarded as out of date, having served their respective purposes. (James Adejuwon, Obafeme Awolowo University)	Table 17.4 has been removed.
17-573	A	18	0			Table 17.4 - ideas potentially useful here but do not seem to be brought out in the text - or maybe I missed it? (Jan Corfee-Morlot, University College London & OECD)	Table 17.4 has been removed.
17-574	A	18	1			Table 17.4. The title is confusing (Siri Eriksen, University of Oslo)	Table 17.4 has been removed.

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17-575	A	18	1	18	1	Do not understand title - Do you mean "Results of actions taken by farmers in response to climate change", same for heading of last column (Liza Leclerc, UNEP)	Table 17.4 has been removed.
17-576	A	18	1			Table 17.4: avoid "the impact...on...impact". Either "The effect of adaptation..." or "Differences in agricultural impact with or without adaptation by farmers". (John Morton, Natural Resources Institute, University of Greenwich)	Table 17.4 has been removed.
17-577	A	18	1			Table 17.4. These all seem like old studies. Are they in the TAR and if so do they need repeating here ? (Mark Tadross, University of Cape Town)	Table 17.4 has been removed.
17-578	A	18	1			Table 17.4 has a very clumsy title. In column 4, as many values are negative and separated by dashes, it would be sensible to prefix positive values with a '+'. (David Thomas, University of Oxford)	Table 17.4 has been removed.
17-579	A	18	1	18	5	Table 17.4 Comments and correct citation of this table are lacking in the text. Moreover, references are rather old (1993-94) and results obtained using more recent scenarios (e.g. Hadley CM3 under SRES A/B) differ from those previous. For example: in Parry et al (2004) impact of climate change on cereal production considering adaptation ranged between 3 and 8 in developed countries and -7 and -2 in the developing ones, while the same figures in table 17.4 are 4 - 14 and, -9- -12. [Parry,M.L., C. Rosenzweig, A. Iglesias, M. Livermore, G. Fischer. 2004. Effects of climate change on global food production under SRES emissions and socio-economic scenarios. Global Environmental Change 14:53-67]. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Table 17.4 has been removed.
17-580	A	18	1	18	52	"section 10.2.5.1 comment: Too much description on population growth. Placing this section and section 10.2.5.2 in section 10.3 on Page 19 socio-economic scenarios would be more appropriate." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Does not appear to relate to chapter 17.
17-581	A	18		20		Table 17.4 only contains pre-second assessment references. That seems woefully inadequate. (Susanne Moser, National Center for Atmospheric Research)	Table 17.4 has been removed.
17-582	A	18				Title of Table 17.4 needs to be changed: impact on impact makes no sense.	Table 17.4 has been removed.

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						(Jurgen Schmandt, Houston Advanced Research Center)	
17-583	A	19	1	21		Table 17.5. and paragraphs 41-44. This example pertains both to Fiji as well as Kiribati. (Sofia Bettencourt, The World Bank)	Table 17.5 has been removed.
17-584	A	19	1	19		Table 17.5 does not present a "multi-criteria analysis" as stated in the table title. Ist obviously something else, eventually the result of a MCA-exercise. But what happened with regard to MCA can not be extracted from the table. I suggest either to change the table title or adjust the contents. (Manfred Lexer, Institute of Silviculture)	Table 17.5 has been removed.
17-585	A	19	1			Table 17.5: "Moderate impacts" is confusing and should presumably read "To moderate..." or "Moderating...." (John Morton, Natural Resources Institute, University of Greenwich)	Table 17.5 has been removed.
17-586	A	19	1			Heading of table 17.5. there are two references for 2000, give " a" and " b " to differentiate. i.e World Bank, 200a, World Bank 2000b. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Table 17.5 has been removed.
17-587	A	19	13			"section 10.3.1 comment: while WGII of AR4 suggests to use time slices: 2030s, 2050s and 2080s, this chapter uses 2020s, 2050s and 2080s instead. It might be difficult to change given the existing research results." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Not relevant to Chapter 17
17-588	A	19	20			Table 17.5 should follow text on p 21 (C. Gregory Knight, Pennsylvania State University)	Table 17.5 has been removed.
17-589	A	19		21		MULTI CRITERA ANALYSIS including Table 17.5. This section conveys little to the intelligent reader. The table is not sufficiently self explanatory to justify the very brief reference to it in the text. The only reference to it in the text is one sentence: "A range of specific adaptation practices was identified along with criteria for their evaluation as shown in Table 17.3. (The authors meant to refer to Table 17.5). I suggest that the section on Multi Criteria Analysis should be based exclusively on the Fiji Example. This should consist of the table, a narrative on its compilation and a discussion of the results. (James Adejuwon, Obafeme Awolowo University)	Table 17.5 has been removed.

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17-590	A	19				last line in the table “?” suggest “can wait “ (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Table 17.5 has been removed.
17-591	A	21	1	35		Sections 17.2.4.3 and 17.4.2 (national level) See example of participatory adaptation prioritization and mainstreaming at the national level in Kiribati on pages 21-22 of Bettencourt et al (2005), provided with this review. (Sofia Bettencourt, The World Bank)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-592	A	21	1			"section 17.2.4.3 comment: two references are provided for your information: Yin, Y.Y., Huang, Y.F. and Huang, G. H. 2002. “An integrated approach for evaluating adaptation options to reduce climate change vulnerability in coastal region of the Georgia Basin” GIS Science. 8(2): 86-96. Yin, Y.Y. 2002. “Adaptation evaluation tools and analysis methods for climate change” J. of Glaciology and Geocryology 24(4): 426-432. (in Chinese with English abstract)” (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-593	A	21	1	21	50	This part has too much introduction about MCA method (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-594	A	21	10			I suggest a reference to a core MCA reference here - not to an application. (Ian Noble, The World Bank)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-595	A	21	12	21	21	Are these possibly in the TAR and are there more recent examples ? (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-596	A	21	17	21	18	Change to "from maintaining food security to maximizing employment" (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-597	A	21	20	21	20	It is not clear what "There was presented" means (Michael MacCracken, Climate Institute)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-598	A	21	20		22	It does not read well. Rephrase /reword (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-599	A	21	20			THIS not There as first word of sentence (Gina Ziervogel, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-600	A	21	21			It's unclear what you mean by "nor were the connections with policy decisions addressed" (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-601	A	21	23		31	the text notes that stakeholder/analyst MCA in Can - but questions whether the work with stakeholders affected adaptation decisions. The wording suggests that this ineffectiveness is due to the stakeholder interaction but there is no analysis of why this failure occurred. Is it due to the stakeholder component, the MCA or some other dysfunction link between analytical and policy decision-making? Can one say that MCA is less influential in dm than other forms of analysis? More recently there is an example in British Columbia (see Cohen et al 2004) - is the	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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						assessment of effectiveness the same? Or of the MCA example in Fiji as outlined in the table 17.5? Or of other examples (see UKCIP 2005; Moser 2005)? Some of what I have read suggests that the stakeholder component provides lasting understanding and support for policy action (e.g. see Stern & Fineberg 1996). (Jan Corfee-Morlot, University College London & OECD)	
17-602	A	21	23			The original AHP process should be cited (Thomas Saaty) and the words "so-called" be deleted. (C. Gregory Knight, Pennsylvania State University)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-603	A	21	23	21	31	This para mixes effectiveness of the method with effectiveness of implementation. It would be good to separate them. (Ian Noble, The World Bank)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-604	A	21	30	21	30	limits of the approach taken' - what are those limits ? (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-605	A	21	33		50	There is nothing at all here about what is involved in, what it would take to get individuals, organizations or communities to consider adaptation strategies. If the literature isn't there, then at least mention that we don't know enough yet about this -- again, another ingredient for your future research priorities section that still needs to be written. (Susanne Moser, National Center for Atmospheric Research)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-606	A	21	34	21	34	missing "(I)" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-607	A	21	38			Replace 'reach' with 'each'. (Bernard Edward Gomez, Department of Water Resources)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-608	A	21	40		41	Again - reference to the Dolan et al study suggesting that MCA/stakeholder study on farming in Can has very little utility for decisionmaking on agriculture -- see comments above -- you need to explain and support this conclusion which seems to go against a fair amount of the literature from the last decade on the value of deliberative processes in environmental decisionmaking. [See also Beierle & Cayford 2002; NAS 2005] (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-609	A	21	40	21	41	Explain why the approach has limited utility. (Ian Noble, The World Bank)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-610	A	21	43			World Bank , 2000 : there are two references for 2000, give “ a” and “ b “ to differentiate. i.e World Bank, 200a, World Bank 2000b. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-611	A	21	44			Table 17.3. May be Table 17.5 (Hideyuki Kobayashi, Ministry of Land, Infrastructure and Transport)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-612	A	21	44	21	44	(Table 17.3) - should this be Table 17.5? (Maggie Opondo, University of Nairobi)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.

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17-613	A	21	44			table 17.3 should be 17.5 (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-614	A	21	44	21	44	table 17.3 should be 17.5 ? (Mark Tadross, University of Cape Town)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-615	A	21	44	21	44	Error in table number. Should be 17.5 instead of 17.3. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-616	A	21	46		50	pitfalls with subjectivity of weights assigned to different criteria to assess measures - explain why this is a pitfall? Is such an assignment of weights any more or less subjective than choosing a discount rate or aggregation method for working across damage costs in different world regions? (Jan Corfee-Morlot, University College London & OECD)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-617	A	21	50			What have we learned from this long section on various modes of analysis? (Jurgen Schmandt, Houston Advanced Research Center)	This section has now been removed, and replaced by a section focussing on Adaptation costs and benefits. The broader discussion on assessment methods would in principle be covered by Chapter 2.
17-618	A	22	0			Comments should be made about the extent to which this literature on adaptive capacity is grounded in evidence of adaptation to specific challenges (I.e. empirically grounded) (C. Gregory Knight, Pennsylvania State University)	
17-618	A	22	0			Comments should be made about the extent to which this literature on adaptive capacity is grounded in evidence of adaptation to specific challenges (I.e.	Addressed

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						empirically grounded) (C. Gregory Knight, Pennsylvania State University)	
17-619	A	22	3	29	49	Much, if not all of what is written here belongs to the chapter on vulnerability. (James Adejuwon, Obafeme Awolowo University)	Addressed
17-620	A	22	3	22	3	ASSESSMENT OF ADAPTATION CAPACITY, options and constrains. I notice that “adaptation capacity” in this sub heading is not mentioned anywhere again in the text. Could it be that “adaptation capacity is interpreted as adaptive capacity? This will be unfortunate because to me the two terms mean two different things. More importantly, between the two, it is adaptation capacity not adaptive capacity that is more relevant in the assessment of adaptation. If adaptation capacity is interpreted as an inventory of tools (policies, strategies, measures, early warning systems etc.), adaptive capacity is an inherent property of each exposure unit consisting of resources not limited to adaptation tools designed to enhance resilience and the capability to anticipate and forestall impacts or ‘bounce back’ after impacts have been delivered. To me, it seems that adaptation capacity is the space allocated in the Plenary outline to identify, describe, typify and assess the tools of adaptation. As I said earlier, adaptive capacity should be left to the chapter on vulnerability. The FOD seems to agree with this in several statements; for example on page 22 line 27 the draft is of the view that “much of our understanding of adaptive capacity comes from vulnerability studies” (James Adejuwon, Obafeme Awolowo University)	Addressed
17-621	A	22	3	24	46	Aren't there any studies that link adaptive capacity to structural elements in the economy? It seems to me that Alain DeJanvrey's students are starting to write about this. I think there was a study by Waters (I can't remember the exact reference) that did this or came very close, using general equilibrium models to identify key structural parameters that were related to the ability to adapt to natural shocks. As I suggested, earlier, I think the macro-economic literature on resilience and development needs to be integrated with the climate change literature on this topic. I think there's a lot that can be learned. It's not just about resource scarcity and technology. (John Macintosh Callaway, Forskningscentre RISØ)	Addressed
17-622	A	22	3			Section 17.3. this section is in need of examples - e.g. of different social groups and	Addressed

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						vairiable vulnderablity and adaptive capacity in different locations (Jan Corfee-Morlot, University College London & OECD)	
17-623	A	22	3	23	23	Whole section could be shortened and tightened (Liza Leclerc, UNEP)	Addressed
17-624	A	22	3	22	3	The term "adaptation capacity" appears out of line with the rest of the chapter, which uses the term "adaptive capacity" throughout. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-625	A	22	3			Section 17.3 - this section should come before the section 17.2 because it follows directly from section 17.1. I feel that the assessment of adaptation practices is more appropriate once the conceptual discussion is finished. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-626	A	22	5			17.3.1. It is a little confusing to return to a conceptual discussion of adaptive capacity here. It seems partly to overlap with the initial section 17.1.1. Perhaps the two should be merged. This could also facilitate a clearer explanation of the relations between the concepts. (Siri Eriksen, University of Oslo)	Addressed
17-627	A	22	5			Section 17.3.1: if adaptive capacity comes close to being the converse of vulnerability, as it does in this section, where does this leave the concept of resilience? (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-628	A	22	7	22	10	This first section is repetitive because of the gap between section 17.1 and this section. See comment no. 37 above - it would be more appropriate to move this section up and then it would not necessary to repeat this information here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-629	A	22	7	22	17	Definition of adaptive capacity is not consistent with that appearing in 17.1.1 (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-630	A	22	8			Is the topic climate variability and climate change? This should be clarified at the beginning of the chapter. (Jurgen Schmandt, Houston Advanced Research Center)	Addressed
17-631	A	22	11	22	13	In Bangladesh, alternative livelihoods options have been promoted by a project	Addressed

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						<p>titled "Reducing Vulnerability to Climate Change (RVCC)" by taking advantage of changed geo-physical realities: women are provided training to establish nurseries with species that are tolerant to high salinity in moderately saline areas which will become highly saline under climate change; people are taking advantage of water logging and hydroponics, creating floating vegetable beds and producing organic vegetables.</p> <p>(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))</p>	
17-632	A	22	11		13	<p>I chose this passage because it is the strongest mention I found in the chapter that adaptation could take a positive direction. The chapter generally is well researched and argued and I agree with most of what is said there. However, I found the lack of discussion of opportunities for positive adaptive behavior distressing. By positive, I don't mean undoing damage, but rather taking advantage of opportunities afforded by a warmer climate, even one with higher variability in weather behavior.</p> <p>(Michael Canes, Logistics Management Institute)</p>	Addressed
17-633	A	22	13	22	17	<p>"section 17.3.1 comment: delete from line 13: Adaptive capacity....(repetitive)"</p> <p>(Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)</p>	Addressed
17-634	A	22	15			<p>"adaptation, consciously or unconsciously" - this is inconsistent with previous comment that adaptation can only be conscious</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	Addressed
17-635	A	22	16	22	17	<p>"technology' should also be identified as a resource. "Access to technology" makes a huge difference in real-life coping, especially during disasters. Even access to infrastructure may sometimes appear to be quite resourceful, as observed in the case of fleeing people stranded on the interstate highway just prior to landfall of hurricane Catherina, in the USA. Had the other side of the interstate been open to the fleeing traffic, many people could save their lives. The resource was simply wasted, due to lack of both planning and coordination.</p> <p>(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))</p>	Addressed
17-636	A	22	19	22	25	<p>Even where institutional, financial and technological capacity exists, adaptation may not take place (Lisø et al 2004).</p> <p>(Siri Eriksen, University of Oslo)</p>	Addressed

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17-637	A	22	19	22	25	Avoid duplication in this chapter. Very similar thoughts (and wordings) are brought forward on p. 23 (lines 45ff.) and on p. 24 (lines 15-21). (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-638	A	22	19	22	25	Isn't the capacity to adapt the same as the capacity to respond? Are increased adaptive capacity and decreased vulnerability directly and proportionately related? What is the relationship? (Liza Leclerc, UNEP)	Addressed
17-639	A	22	19	22	25	It is correct that the adaptive capacity is needed to minimize risk as well as take advantage of opportunities in both developed and developing countries, as written in the text. It seems to me that the more concerns should be paid to the most vulnerable people and regions, namely developing countries where the necessity of enhancing adaptive capacity is urgent, when we discuss the adaptation and adaptive capacity. Actually the adaptation issue should be more important for the developing countries than for the developed countries. (Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))	Addressed
17-640	A	22	21	22	22	Modify the sentence starting on line 21 as follows: "Although high income per capita may neither be necessary nor sufficient for adaptation (Moss 2001), it makes successful adaptation more likely because, among other things, wealthier societies generally have greater access to the economic and human resources necessary to afford and implement the technologies needed to cope (Goklany 1995, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-641	A	22	21			In view of statement on page 34, lines 32 - 33; statement on page 22, line 21 should omit 'neither a necessary' in order to avoid complications. (Bernard Edward Gomez, Department of Water Resources)	Addressed
17-642	A	22	24	22	25	"In short..." - I am not sure if I agree that adaptive capacity is needed to take advantage of opportunities in both developed and developing countries - this statement is too general. This needs to be more explicit to add any value to this chapter (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-643	A	22	27		30	From the literature, I would say the second definition of vulnerability is more	Addressed

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						prominent, but the first definition makes one think that vulnerability as outcome of climate change is more important - I would swap them around. (Gina Ziervogel, University of Cape Town)	
17-644	A	22	28			Vulnerability in the climate change literature... (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-645	A	22	28	22	29	"Vulnerability is often considered an outcome of climate change..." - I disagree with this. Vulnerability is not an outcome of climate change; if anything, it could be seen as a consequence of effects triggered by climate change, such as poor harvests, degradation of drinking water quality, etc. but it is not because of cc that people are vulnerable - people are vulnerable to these impacts because of their existing conditions - poverty, gender, race, location, political affiliation, belief systems, etc. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-646	A	22	29	22	31	"However, vulnerability can also be seen as a state or condition..." - there are a number of scholars who would disagree with this approach (Cardona, Green) in particular because vulnerability is a relative concept - people cannot simply be "vulnerable" without being "vulnerable to something". Thus, vulnerability cannot be considered a condition; if this is to be kept, something needs to be noted about a "relative state or condition" (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-647	A	22	30			after climate change add: "as is typical in the hazards literature" (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-648	A	22	30			Downing and Patwardhan (2005) Assessing Vulnerability for Climate Adaptation. In Lim et al. (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-649	A	22	33	22	37	The meaning of these sentences is unclear. How is vulnerability reduced by adaptive options? (Siri Eriksen, University of Oslo)	Addressed
17-650	A	22	33	22	33	Rather than "Both types of vulnerability...", this should read "Vulnerability in both senses..." (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-651	A	22	37	22	39	A good point. It should be noted, here or in the previous section, that none of the	Addressed

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						examples of adaptation options described in the previous section are of the type that address the underlying causes of vulnerability. (Siri Eriksen, University of Oslo)	
17-652	A	22	37	22	39	Here also Blaike et al 1994 or Wisner et al 2004 could be referenced. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-653	A	22	39			Add the following references: Goklany (1995, 1999a, 2005b). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-654	A	22	41			"...the indicator approach has been widely used..." - I disagree that this approach has been used WIDELY. It has certainly been attempted by some (see Downing et al UNEP publication) but has not really been picked up so using the word "widely" is a bit of an exaggeration (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-655	A	22	41	23	2	There are a lot of limitations to using the indicator approach to assess vulnerability. These should be mentioned. Indicators do not capture the dynamic nature of vulnerability well nor the heterogeneity between actors. (Gina Ziervogel, University of Cape Town)	Addressed
17-656	A	22	46			Many believe that indices are too general to be able to reflect vulnerability and should not be promoted to this degree. Vulnerability is very location- and circumstance-specific and not only impact-specific. I don't agree with the way this is written - it needs to reflect the other perspective of indices too. I see you pick this up on page 24, line 32-45 - maybe you want to consider moving this up? You also pick up on this on page 24 line 48 and on...so I wonder whether you should instead rewrite your first section on page 23 to match with the comments on page 24. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-657	A	22	50			I would add "the propensity for technological change" or "technological prowess" to the list of generic indicators, and add the same references as listed in the previous comment. See also next comment. (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-658	A	23	0			Section 17.3.2 - strangely this section says almost nothing on technology; it lacks examples (Jan Corfee-Morlot, University College London & OECD)	Addressed

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17-659	A	23	1			Clearly institutions, knowledge and technology can be, and often are, impact-specific, but they are also critical for the generic indicators. See Goklany (1995, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-660	A	23	2			It would be useful to acknowledge here work that has been completed to indicate human vulnerability to hydrometeorological extreme events. Two global projects stand out. UNDP Disaster Risk Index (2004 - see comment 7 for ref) developed indicators for national level vulnerability to flood and tropical storm and a World Bank Hotspots project with Columbia University had sub-national assessments for flood, storm and drought. Both developed indexes that were calculated with past mortality or economic loss data and so are limited in their ability to forecast future losses. Key challenges to come from these projects are i) the lack of globally accessible disaster loss data and ii) the difficulty of assessing progress in vulnerability reduction - it can be that excellent and productive vulnerability reduction initiatives are swamped by background increases in vulnerability. This is a strategic challenge for donors who may seek to reward those enacting vulnerability reduction policies. (Mark Pelling, King's College London)	Addressed
17-661	A	23	4		23	notions of adaptive capacity and coping range are not clear - Is there more specific work on these notions in the TAR? If so, could these be brought in? (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-662	A	23	4		11	it strikes me as if the distinction between adaptive and coping capacity should come sooner in the concept definition section early on in the chapter (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-663	A	23	11			What you can underscore here as well is that coping can lead to increased vulnerability in the long run (see Susanne Davies, 1993, 1996) (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-664	A	23	13	23	23	What are policy implications? One aspect may be that forces that push people into destitution (such as conflict/violence/exclusion Eriksen and Lind, 2005) may make coping or crisis measures a permanent adjustment, not because the coping strategies are viable but because other livelihood options have been undermined. Among destitute groups with such low human security, the types of adaptation measures	Addressed

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						described in the previous section are unlikely to be relevant. Technical, sectoral adjustments are unlikely to benefit people who operate in the informal sectors. There is a need to identify ways of reaching the most vulnerable and destitute, or pro-poor adaptation options (Eriksen 2005; Eriksen and Næss 2003). The security nets and resources critical to adaptation among the most vulnerable (such as local biodiversity, customary resource rights, informal institutions) need to be discussed. (Siri Eriksen, University of Oslo)	
17-665	A	23	15		16	The coping range may expand - in response to what? Previous sentence? Slightly confusing sentence (Gina Ziervogel, University of Cape Town)	Addressed
17-666	A	23	18	23	19	This example seems rather unlikely for a warming world--a better example might be an extended heat wave such as happened in Europe in 2003. (Michael MacCracken, Climate Institute)	Addressed
17-667	A	23	18	23	18	You could add that coping action in one part of a system can increase vulnerability in another part of the system or in the system overall. There is nothing intrinsically beneficial about coping capacity. Like any asset it is a source of inequality precisely because it is a resource for improves wellbeing for those who have it! (Mark Pelling, King's College London)	Addressed
17-668	A	23	22	23	22	I would consider rewording the last part of this sentence as it makes it sound like climate change will have a negative impact everywhere (Mark Tadross, University of Cape Town)	Addressed
17-669	A	23	26			17.3.2 Local knowledge should be part of this discussion of technology and knowledge. (Siri Eriksen, University of Oslo)	Addressed
17-670	A	23	26			Take "role of technology" out of the title. You discuss far more than technology here, and should do so, so it's an unnecessary addition (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-671	A	23	26			Suggest removing "role of technology" from header (Erika Spanger-Siegfried, Union of Concerned Scientists)	Addressed
17-672	A	23	28	23	43	In Bangladesh, the rather poor dissemination of flood forecasting with very short lead time made the warning system ineffective. However, with the advent of	Addressed

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						cellular telecommunication technology, the dissemination process has been boosted and the warning system has become effective. Even in developing country, a simple technological breakthrough can be extremely effective towards advancing adaptation. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-673	A	23	28			Replace "important" with "critical". References: Goklany (1992, 1999a, 2005b) (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-674	A	23	28		43	If there are some database or tables of such technologies, please mention here. (Hideyuki Kobayashi, Ministry of Land, Infrastructure and Transport)	Addressed
17-675	A	23	33	23	34	Adaptation can also result in increased hazard - cooling systems are a great example, with the increased demand for energy produced by thenadaptative action of individuals using air conditioning. (Mark Pelling, King's College London)	Addressed
17-676	A	23	36			[1] Insert "formal" before "research programs", [2] Add "universities" to "government and the private sector". [3] Add to the end of this sentence the following: "..., as well as more informal efforts undertaken in response to societal incentives for innovation." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-677	A	23	36			capacity: (insert colon not comma)? (C. Gregory Knight, Pennsylvania State University)	Addressed
17-678	A	23	37	23	38	Modify the sentence starting on line 37 as follows: "The capacity to undertake such programs may be linked to economic AND HUMAN RESOURCES, AND THE institutions and incentives THAT SUSTAIN THEM (Goklany 1999a, 2005b)." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-679	A	23	45	24	2	The sad experience of hurricane Catherina may be provided here as an eye opener. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-680	A	23	45	24	2	Avoid duplication (doing this I refer to my comment no. 54 above). (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-681	A	23	45	23	47	As for references here, I think what you have is discussions about impacts of floods in Bangladesh compared with impacts of floods in the US - Bangladeshis lose less because they possess less, but the cost of losses in economic terms in the US is much	Addressed

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						greater. Nevertheless, while the overall financial cost of the impacts may be higher in the US, greater security networks such as insurance will be available to most affected citizens. The relative costs in Bangladesh will therefore be higher. A reference for this is Terry Cannon (1994) 'Vulnerability Analysis and the Explanation of 'Natural' Disasters' in Varley, A.(ed) Disasters, Development and Environment, John Wiley and Sons: Chichester (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-682	A	23	47	50		Again, chapter 4 of the UKCIP report mentioned above is relevant here. (Richenda Connell, Acclimatise)	Addressed
17-683	A	23	47			Tol et al 2004 could be cited here (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-684	A	23	47	23	50	Please give examples to support the statement. (Pauline Dube, University of Botswana)	Addressed
17-685	A	23	47			Refs: Goklany (1995, 1999a, 2000, 2005b). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed – read an incorporated where appropriate
17-686	A	23	47			refs : references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-687	A	23	47	23	47	as noted in text (and elsewhere) references need to be inserted for these statements (Mark Tadross, University of Cape Town)	Addressed
17-688	A	23	48	24	1	Modify the beginning of the sentence starting on line 47 by striking "However" and change "show" on line 48 to "reinforce" [Reason: The pre-TAR studies cited in comment 25, for example, do, indeed, note the importance off the factors noted in this sentence.] (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-689	A	23	48			TAR not defined (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-690	A	23		28		The structure of Section 17.3.2 is very unclear to me. Can't you give a better roadmap or write the paragraphs so that you can quickly grasp what the key elements of this section are? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-691	A	24	4	24	10	The following text may be useful here but stems from my unpublished PhD thesis	Addressed

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						so may not be possible to cite or use (?): "Although impacts of hazards are inequitably distributed, as Burton et al. (1993) note, the inequity of impacts from hazards is not randomly distributed. In this context, Dow (1992) defines vulnerability as the differential capacity of groups and individuals to deal with hazards, based on their physical and social positions, and Susman et al. (1984) say that vulnerability is the degree to which different classes of society are differentially at risk. This indicates that vulnerability is an important concept in development, originating in physical fragility or exposure, socio-economic frailty, and lack of resilience (Cardona, 2004). The importance of vulnerability in the context of development is such that McEntire proposes speaking about "invulnerable development" rather than sustainable development (2000: 58). He defines this as "development pursued in such a manner as to address vulnerabilities, and thereby decrease the probability that social, political and economic progress will be set back by disaster" (McEntire, 2000: 58)." (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-692	A	24	4	24	5	"A distinction has been made betweenin general." Is this distinction really useful? Aren't technology and management a part of development in general? If the distinction is valid and useful, then please explain how is it relevant to the theory and practice of adaptation? (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-693	A	24	4	24	10	Why is this distinction necessary? Not particularly clear from paragraph. (Frank Sperling, The World Bank)	Addressed
17-694	A	24	6			"need for theoretical frameworks"... really, just that? I would say we need far more than theoretical knowledge practical knowledge on what to do and how to get our knowledge across to those doing it. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-695	A	24	6	24	9	A separate paragraph maybe dedicated to the frameworks to understand information processing and decision-making about adaptation options by actors at different scales. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-696	A	24	9	24	10	What is meant by the "development framework"? It might be useful to briefly describe that.	Addressed

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						(Upasna Sharma, Indian Institute of Technology, Bombay)	
17-697	A	24	12		45	Something happened with national indicators of adaptive capacity, but did not give the opinion of IPCC on what are the national indicators. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-698	A	24	13	24	21	I don't believe there is any contradiction between saying that adaptive capacity is "related to" (rather than "equated with") "development" and saying that "national aspirations" can affect the ability to adapt. Being wealthy and possessing the necessary human and social capital to employ adaptive technologies does not mean that those technologies will be deployed. Ultimately, the actors involved in adaptation will try to optimize their well-being as they perceive it. As a result, some societies may choose one bundle of responses, while others may choose other bundles. This is because, as also noted in Goklany (1999a), different societies weight the determinants of well-being differently, and these weights, moreover, change with time (as the population's circumstances and preferences change/evolve). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-699	A	24	13	24	21	1st para to National indicators of adaptive capacity: Please check you referencing here. The Poverty and Climate Change (POVCC) report (AfDB et. al, 2003) does not simply equate adaptive capacity with development. Your reference selects from the definition in the glossary, which states also that adaptive capacity cannot be easily measures. Yes, it relates to a variety of factors, some of which are linked to levels of development, but it also notes other factors such physical exposure associated with climate risks. Hence, it takes notion that the issue is more complex and equating adaptive capacity with levels of development would be an oversimplification. The overall message of POVCC is more focused on the impacts of climate change on the sustainability of development processes and consequently the need for adaptation, rather than the other way round. Please consider if Haddad (2005) is correctly referenced here. (Frank Sperling, The World Bank)	Addressed
17-700	A	24	15			Add to the references on this line: Goklany (1999a, 2000, 2005b). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed

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17-701	A	24	15	24	18	See my comments no. 54 and 55 above. (Margareta E. Kulesa, Mainz University of Applied Sciences)	Addressed
17-702	A	24	23		30	See Carolan and Bell 2003 for another relevant reference on the notion of trust. There is a broader literature on social capital; a recent OECD document may be of interest - "Building sustainable societies: the role of social protection" (OECD document - DELSA/ELSA(2003)6) (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-703	A	24	23	24	35	it is not clear why these two paras are under "National indicators..." (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-704	A	24	23			Line 23 onwards. In this paragraph issues of governance are introduced, which is important. There is an opportunity here to flag up issues of equity too which as far as I can tell are not included in the chapter. (David Thomas, University of Oxford)	Addressed
17-705	A	24	24	24	26	Please describe what is meant by 'generic adaptive capacity' before using the term or at least refer to the literature that defines and describes the term 'generic adaptive capacity'. (Upasna Sharma, Indian Institute of Technology, Bombay)	Addressed
17-706	A	24	27			add "social" to capital, if that's what is meant here, or otherwise clarify (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-707	A	24	28			This line refers to 'trust'. UKCIP has found that 'trust' in the climate change scenarios by different decision-makers is also important in terms of their engaging with adaptation. (Richenda Connell, Acclimatise)	Addressed
17-708	A	24	32		35	This conclusion about use of development levels and resources [not sure what this means] as indicators of adaptive capacity when preceding paras (lines 15-30; also 37- 45) suggest a more complex, pluralistic set of notions that include intangibles such as trust and social networks. Do you mean to suggest that we can quantitatively compare adaptive capacity indicators by looking at wealth or other development indicators? And what of composite development indicators such as HDI as a proxy? (Jan Corfee-Morlot, University College London & OECD)	Addressed

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17-709	A	24	32	24	35	Give examples of the different scales that are being referred to (Pauline Dube, University of Botswana)	Addressed
17-710	A	24	32	24	35	Conclusion in first sentence is not clearly supported by the previous two paragraphs. Second sentence is intuitive, is there something more concrete that can be said about adaptation efforts at different scales and levels of governance? (Frank Sperling, The World Bank)	Addressed
17-711	A	24	47			Local context -- don't lines 32-35 fit better here? (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-712	A	25	0			The latter parts of the chapter are much more concrete with useful examples of what is actually meant by adaptation, although we still don't learn where adaptations and adaptation strategies come from. (C. Gregory Knight, Pennsylvania State University)	Addressed
17-713	A	25	1		6	Place based, interpretive (qualitative) research - is it only relevant at local levels or does it also help us to understand broader communicative and science-policy processes for translating global environmental issues into local action agendas? Possibly also lessons for the international or national policy processes from these local experiences? (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-714	A	25	5	25	5	Instead of 'place-based' studies, could we say 'micro-level, situation-specific' studies? (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-715	A	25	17			It is important to note that local studies of adaptive capacity and action also have the potential to empower local actors and contribute to the building of adaptive capacity. A number of NGO (ActionAid, International Federation of the Red Cross and Red Crescent Societies, Tearfund) have experience of using participatory vulnerability and capacity assessments to both reveal local assets, vulnerabilities and hazards and also be a catalyst for stimulating local concensisation and action. You could add something like 'Participatory approaches have the potential to contribute to processes of building or realising adaptive capacity through participatory methodologies. Research on hese methods has idenitified a number of challenges: data accuracy and systematisation, ethical questions of enganing in	Addressed

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						local power dynamics, the potential for up-scaling or aggregating datasets and mixed methodologies see Pelling, M (2005) Learning from others: scope and challenges for participatory disaster risk assessment, Disasters (in press). (Mark Pelling, King's College London)	
17-716	A	25	20		21	"economic policies determined at the regional, national AND INTERNATIONAL level" (think globalization, free trade agreements etc....) (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-717	A	25	21	25	21	"Level" might be "levels" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-718	A	25	23			refs : references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-719	A	25	23			You are looking for references here. I have a lot of material on this, unfortunately most of it is contained in my doctoral thesis and thus in a number of as yet unpublished papers. In fact, my case study on adaptation in El Salvador fits the argument here perfectly - is it too late to get it included in the chapter (I assume it needs to go into a peer-reviewed journal, and cannot simply be included as a working paper). The findings also echo O'Brien et al's findings on double exposure (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-720	A	25	25		27	introduce notion of low adaptive capacity (to outside stressors generally) - and the idea that it might hold across broad social phenomena such as globalisation as well as climate change. Taking this combined with the example in Box 17.3 seriously suggests that it is impossible to disentangle climate vulnerability and adaptive capacity from broader notions of vulnerability to social and environmental disruptions -- again might suggest using something like HDI or other composite indicators of social and human development more generally as a proxy for cc adaptive capacity. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-721	A	25	27			At the end of this paragraph, you may also want to include a positive example; ask Diana Liverman or Coleen Vogel	Addressed

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						(Susanne Moser, National Center for Atmospheric Research)	
17-722	A	25	27			BOX 17.3 not to be in bold. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-723	A	25	29	25	33	Adaptive capacity is also highly linked to levels of poverty, with the poor forced to choose to live and cultivate more vulnerable areas. (Sofia Bettencourt, The World Bank)	Addressed
17-724	A	25	29	25	29	remove " and for human population..." (Pauline Dube, University of Botswana)	Addressed
17-725	A	25	29		33	No matter how heterogeneous adaptive capacity is, the authors should summarize a set of common/general indicators for different society and locality levels, as well as for age, class, gender, and social status. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-726	A	25	29	25	30	Could reference Bharwani et al (2005) ref provided earlier. (Gina Ziervogel, University of Cape Town)	Addressed
17-727	A	25	36	26	20	For the box 17.3, we, the readers, learned an Indian example only. What other people can do in for their countries are not clearly. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-728	A	25	37	26	20	BOX 17.3: Mapping adaptive capacity to multiple stressors belong to the chapter on vulnerability (James Adejuwon, Obafeme Awolowo University)	Addressed
17-729	A	25	39	25	48	I think to reduce the size of the box (and increase the impact on the reader) I would suggest removing this first paragraph or placing it outside the box i.e. go straight into the details of the study (Mark Tadross, University of Cape Town)	Addressed
17-730	A	25	44		46	can you be more specific here? Which category of farmers do one thing, and which kind do something else? It would be more meaningful if this were more specific, giving more clues to what the deciding influences are on who does what. (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-731	A	26	11	26	11	What is the reason for the higher adaptive capacity along the Indo-Gangetic Plains?	Addressed

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						I think a little bit more information would be useful. (Mark Tadross, University of Cape Town)	
17-732	A	26	14			The map legend, and the way the map is referenced in the text of the box, could be clearer (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-733	A	26	14	26		The shading on the map is not legible - if the final version will be printed in black and white then a more contrasting shading scheme is necessary. (Maggie Opondo, University of Nairobi)	Addressed
17-734	A	26	21	26	22	some body text between the 2 boxes would look better than having one box immediately after the other. (Mark Tadross, University of Cape Town)	Addressed
17-735	A	26	23	28	12	Women has a completely different viewpoint when they are asked to prioritize adaptation needs. In the southwestern Bangladesh, the major focus of adaptation action for women was 'safe drinking water' in the backdrop of increasing salinity due to low flow in river systems and potential reduction of rainfall in drier (non-monsoon) months, while that for their male counterparts was either 'food production' for consumption or 'maintaining income' under climate risks (Ahmed and Schaerer, 2004). (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-736	A	26	23	28	12	Box No. 17.4 should be included as a sub-section. Strongly recommend a sub-section on gender issues. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-737	A	26	24	28	12	BOX 17.4 also belongs to the chapter on vulnerability (James Adejuwon, Obafeme Awolowo University)	Addressed
17-738	A	26	24	28	12	This is a good example! What needs to be down is to shorten it. (Pauline Dube, University of Botswana)	Addressed
17-739	A	26	24			Box 17.4. In this discussion of gender, it would be useful to extend the discussion of empirical evidence to how groups of men and women adapt differently (not only that women may be generally more vulnerable than men and have poor access to resources). Women are also a heterogeneous group. Other important literature to include is political and social analysis of power structures, decision making and	Addressed

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						social differentiation and how these affect the accessing of different adaptation options. Adaptation measures promoted through formal mechanisms dominated by men may not be accessible to women or even undermine women's interests and increase their vulnerability. Adaptation interventions may serve to strengthen male dominated power bases unless women-controlled decision-making fora or processes (often informal) are included in the design of such interventions. (Siri Eriksen, University of Oslo)	
17-740	A	26	24	28	11	Reference could be made here to the changes many societies are undergoing at present, for example in Africa, in terms of rural-urban migration and HIV/AIDS, and the impacts this has on gender roles (e.g. the increasing number of orphans and children-headed households) and in turn vulnerability. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-741	A	26	24			Box 17.4 is very large in comparison to the text in this section. I wonder if most of the text can go to the main body as a section on gender, keeping the last two paragraphs in the box as the case studies ? (Mark Tadross, University of Cape Town)	Addressed
17-742	A	26	24	28	11	Box 17.4 is too long, should be shortened. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-743	A	26	30	26	30	are some of these older references in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-744	A	26				India map: Why are there no winners of globalisation in India? (Richard S.J. Tol, Uni. Hamburg)	Addressed
17-745	A	27	7	27	8	is this 1988 reference in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-746	A	27	21	27	21	It is difficult to recognise the scale of this inequality as much disaster loss data held globally is not gender disaggregated. (Mark Pelling, King's College London)	Addressed
17-747	A	27	22			examine should be example (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-748	A	27	23			Another appearance of "natural disasters" - please see Comment no. 20	Addressed

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						(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-749	A	27	32		33	These are for South African women. Could they be summarized as "degree of illiteracy, mobility and work opportunities, and resources ownership issues", for example, for other countries/localities? (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Addressed
17-750	A	27	33			at the end of this paragraph, you should also add issues like mobility, freedom, and cultural norms/socialization to act independently of their husbands; recall the example of Bangladeshi women not seeking shelter from floods because their husbands weren't home... (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-751	A	27	36	27	40	Note that Arnell (2004) indicates that due to climate change, there could be a net reduction in the global population at risk of water stress in 2085 (see Goklany 2005a), (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-752	A	27	44	27	45	Both disaster refuges and relief camps need to be better managed so that women and girls are not made insecure or uncomfortable. Where this has happened, as for example in flood refuges in Bangladesh many more women have taken relief. (Mark Pelling, King's College London)	Addressed
17-753	A	27	46			The Ziervogel study:in Limpop. I am slightly concerned that this research which was carried out in just one small community without any wider coverage, is reported in a way that makes the findings appear to definitively apply to a whole province. Whenever I here this work presneted or see its findings I am concerned about the extremely small sample size employed by th resaechers. I think implications of the study should be toned down. (David Thomas, University of Oxford)	Addressed
17-754	A	28	2	28	2	are the stakeholder networks an alternative information source to the two previously mentioned ones ? If so maybe reword this last sentence to make this fact clearer. (Mark Tadross, University of Cape Town)	Addressed
17-755	A	28	15	29	50	Bringing in the case for different regions in section 17.3.3 will help to map out the	Addressed

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						spatial variations (Pauline Dube, University of Botswana)	
17-756	A	28	15	29	49	My suggestion for this paragraph (17.3.3 Dynamics of adaptive capacity, options and constraints) is to add one short paragraph to explain the relationship between the vulnerability and adaptive capacity, as it exists the close relation between them, in particular when we assess the adaptive capacity. The more vulnerable one region, the more necessary it is for it to adapt and enhance the adaptive capacity. (Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))	Addressed
17-757	A	28	15			Section 17.3.3. - This is yet another section on adaptive capacity. It has important points but is slightly repetitive and certainly focuses the chapter too much on the concept of adaptive capacity only. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-758	A	28	15	29	50	A distinction should possibly be made between continuous increases in vulnerability and the adaptation options available versus discontinuous or threshold changes. E.g. the response to increased severity of drought would be very different to a once of event that lead to sea water intrusion that destroyed a local water source. Equally response to species loss may need a new paradigm in conservation planning since planning in the past has been based on assumptions of a static environment. (Graham von Maltitz, CSIR)	Addressed
17-759	A	28	15	29	49	This part has too much words, figures and tables might be easy to understand. (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Addressed
17-760	A	28	17	28	19	Please add 'technological' features in the long list of variety of differences in scales. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-761	A	28	17		29	You might want to consider referring to work on social and institutional innovations to promote cooperative management of environmental problems here e.g. work by Ostrom, Stern, Dietz, Rydin, O'Riordan. (Jan Corfee-Morlot, University College London & OECD)	Addressed
17-762	A	28	17		20	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-763	A	28	19	28	20	some old references here. Are they in the TAR ?	Addressed

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						(Mark Tadross, University of Cape Town)	
17-764	A	28	27	28	29	Delete sentence. Repetitive. (Liza Leclerc, UNEP)	Addressed
17-765	A	28	31			"section 17.3.3 comment: sub-section spatial variation and Box 17.3 from page 25 to 27 should be in the same session." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-766	A	28	37	28	42	Please give physical examples (Pauline Dube, University of Botswana)	Addressed
17-767	A	28	40			it's more than perceptions! Also understanding, valuation/judgment (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-768	A	28	42			replace" characterize various geographical areas" with "help shape societal discourse and response" (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-769	A	29	2	29	20	Promotion of adaptation options can also capture this dynamic nature of adaptation. In a recently implemented adaptation project in bangladesh, necessary actions/options have been considered at 3 time steps. (a) For a short time scale, the vulnerable communities are provided technical know-how to broaden their 'adaptive capacity', even they are provided with soft-term credits to cover initial investment cost for practicing alternative livelihoods; (b) for a medium to long-term operational scale, local government institutions are provided basic understanding on bio-geophysical aspects that are susceptible to climate variability and change, and the LGIs are assisted to develop their local-level adaptation (response) plans for future implementation with a view to 'modify the risks' from climate related stimuli; and (c) for a long time scale, advocacy at national level is underway to accommodate local level adaptation plans into 'regional- to national-level sectoral and holistic plans' (viz. National water Management Plan and Coastal Zone Development Strategic Plan). It is expected that local adaptation capacity will be enhanced following such a dynamic process and there will be incremental addition of adaptive capacity as the society benefits from each step considered under the project.	Addressed

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						(Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-770	A	29	2	29	20	"section 17.3.3 comment: sub-section temporal variation can be placed in discussion of future scenarios." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-771	A	29	3	29	20	A good example of temporal change in adaptive capacity is the evidence that average deaths from disasters have declined worldwide - see Guha-Sapir, D. Hargitt and P. Hoyois. 2004. "Thirty Years of Natural Disasters 1974-2003: the Numbers" Centre for Research on the Epidemiology of Disasters. UCL Presses. Universite de Louvain. Brussels (Sofia Bettencourt, The World Bank)	Addressed
17-772	A	29	3	29	4	Current coping mechanisms reflect past adaptations' - this needs to be expanded and current coping mechanisms explained. (Gina Ziervogel, University of Cape Town)	Addressed
17-773	A	29	7	29	7	old references in the TAR ? (Mark Tadross, University of Cape Town)	Addressed
17-774	A	29	8		10	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-775	A	29	8			IPCC, 2001 not listed in the references (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-776	A	29	10			Brooks 2003 should have 2003a or 2003b as they are two references of Brook , 2003. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-777	A	29	17	29	18	The reference to Figure 17.2 appears to be incorrect. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	Addressed
17-778	A	29	17	29	18	Figure 17.2 referred to in the text, is this the one on page 9? Since Figure 17.2 on page 9 does not show how the reduction of the number of deaths during floods referred to on page 29. (Maggie Opondo, University of Nairobi)	Addressed
17-779	A	29	17	29	18	figure 17.2 is wrong number and the figure is missing	Addressed

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						(Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-780	A	29	17	29	18	figure 17.2 appears to be something else to that referred to. Can't seem to find it anywhere (Mark Tadross, University of Cape Town)	Addressed
17-781	A	29	17	29	18	Figure 17.2 is cited in the text but it is missing. (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Addressed
17-782	A	29	21			Insert a new para as follows: "Similarly, at the global level, the average deaths per year from climate and weather related events (i.e., drought, extreme temperature, famine, flood, slides, wave/surge; wild fires, wind storm) declined by over 95 percent between the 1930s and 2000-2003, while death rates declined overall by 98.5 percent [Goklany 2005c, based on EM-DAT, the OFDA/CRED database; this database probably missed a number of events in the early years, which suggests an even stronger downward trend]. If famines are excluded then both deaths and death rates peaked during the 1920s [Goklany, personal communication]. Similarly, long term data from the United States on cumulative deaths and death rates due to hurricanes, floods, lightning and tornados show that they peaked in the 1970s, and have since declined by over 50 percent for deaths and 64 percent for death rates [Goklany 2000 and personal communication]." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-783	A	29	21	29	21	An additional tension to note is that between investing in resources to adapt to immediate stresses (such as improving shelter) and in long-term adaptive strategies (such as education). (Mark Pelling, King's College London)	Addressed
17-784	A	29	22	31		Are there reports now available on Hurricane Katrina and the European heatwave of 2003 that could be used here? I have attached a report by RMS. (Richenda Connell, Acclimatise)	Addressed
17-785	A	29	22	29	49	The relationship between adaptive capacity and adaptation also relates to vulnerability – the “adaptation deficit” indicating that vulnerability exists until adaptive capacity is exercised. This is not accounted for in the current IPCC definitions. Various methods of risk assessment being utilised for adaptation (e.g. in the Australian impacts and adaptation program do not account for this, stating	Addressed

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						that vulnerability is a function of exposure to climate change sensitivity and adaptive capacity; Allens Consulting 2005) with accounting for different states of preparedness and willingness to act. This structure works okay with generalisations but operationalising it is difficult. Clear guidance would allow better methods to be framed without getting into the intricacies of definition. This issue is also shared by Chapter 2. (Roger Jones, CSIRO)	
17-786	A	29	22	29	49	This could be moved to section 17.3.1 as it answers questions raised in the reader's mind there. The second sentence in this para is burried but is very important new contribution of this report (Liza Leclerc, UNEP)	Addressed
17-787	A	29	22	29	49	There is a missed opportunity here to discuss inequality and power differentials within societies. Societies that theoretically have adaptive capacity may fail to adapt in practice because that capacity is controlled by interest groups or elites - cf. the failure to invest in adaptation to the threat of hurricanes to New Orleans. The use here of the abstraction "system" across human and ecological systems obscures the possibility of such an argument. The phrase "the motivation of the system" is appropriate neither to human nor ecological systems. (John Morton, Natural Resources Institute, University of Greenwich)	Addressed
17-788	A	29	22	29	50	"section 17.3.3 comment: this sub-section can be placed in section 17.1 Concepts." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Addressed
17-789	A	29	23	29	49	Suggest moving this section to the initial section on definitions. (Sofia Bettencourt, The World Bank)	Addressed – now shortened in 17.1
17-790	A	29	28		31	Could develop the Hurricane Katrina example here (Jan Corfee-Morlot, University College London & OECD)	Addressed – left for N America chapter
17-791	A	29	30	29	30	To expand out of the West, include Indian cities. (Mark Pelling, King's College London)	Addressed
17-792	A	29	33			Change "time" to "time and experience". (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Addressed
17-793	A	29	33	29	41	Sentence - "In other words..." is very obvious and should not be necessary	Addressed

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						(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-794	A	29	35	29	36	This sentence: "A system with a high capacity to adapt at present" appears to be in conflict with the sentence on line 44-47 on the same page: "Thus, to reduce the adaptation deficit, the future adaptive capacity of a system should not be represent a simple extension of past of adaptive capacity..." which also goes conflicts with a discussion noted in comment no. 26 on page 8 lines 7-20. This is also inconsistent with page 41, line 10-12 "Reducing vulnerability to existing hazards..." (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Addressed
17-795	A	29	37		41	some of this should go into the concept definition section early in the chapter (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-796	A	29	39	29		This sentence is not clear - what is meant by the phrase "failure of current adaption to keep pace with development"? What is meant by adaption deficit? (Pauline Dube, University of Botswana)	Addressed
17-797	A	29	40	29	40	Burton (2005) not cited. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	Addressed
17-798	A	29	40			Burton 2005 is missing from Reference list (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Addressed
17-799	A	29	44	29	44	The term "Adaptation deficit" must be defined. Please refer to Ian Burton's speech/paper at the UNFCCC SB-22 adaptation workshop (Bonn, Germany, May 2005) or other reference. Otherwise the term may be interpreted in different ways by different readers. (Bonizella Biagini, Global Environment Facility)	Addressed
17-800	A	29	45		47	Here is another really important point that should make it into the executive summary (Susanne Moser, National Center for Atmospheric Research)	Addressed
17-801	A	30	0	41	48	MOST RELEVANT SECTION: This section is relevant to the chapter. It will surely form part of the final draft of the chapter . (James Adejuwon, Obafeme Awolowo University)	Good Comment
17-802	A	30	1	36	2	This is good background material, but some of it is already dated and much of it will be dated by the time the AR4 is released. It must be remembered that this is an	Addressed

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						assessment and not a text book. What have we learnt from this, albeit limited, base of experience? (Ian Noble, The World Bank)	
17-803	A	30	2	33	48	Section 17.4. In addition to GEF funded projects and NAPA experiences, lessons learned from the 'adaptation initiatives' under the Canadian Climate Change Development Fund (CCDF) should be taken on board. There are rich experiences in several countries, such as in Bangladesh. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	We have redrafted the whole section by accommodating acceptable comments.
17-804	A	30	2			Section 17.4 - I am not convinced that this section actually has a place in the IPCC AR4, particularly the sub-sections on funding. The entire section is about institutions and policies, but would be more appropriately placed in an information or guide document than in a scientific assessment of research on adaptation to climate change. Part of the problem is that it connects the adaptation agenda too closely to the UNFCCC, when there are clearly other avenues that could be more appropriate for supporting the implementation of adaptation (for example the MDGs, international, regional and national disaster risk policies, etc.). I think this approach of highlighting the UNFCCC to such an extent is dangerously close to crossing the science-policy divide that the IPCC has been so careful to set out. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	We do not agree that this piece does not have a place in this Chapter. In the revised draft we have included MDG and other initiatives. All these initiatives undertaken after COP6, so the UNFCCC has certainly played a significant role in encouraging to launch the initiatives.
17-805	A	30	2	30	2	17.4 Enhancing adaptation: Opportunities and constraints might be changed to "17.4 Opportunities and challenges" (Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)	Do not agree
17-806	A	30	4			This sub-section either needs to say that international Climate driven...Or the discussion here should be extended beyond the UN global initiatives such as GEF and NAPA as there are other regional initiatives outside these. The sub-section needs to be reduced. The section should also address difficulties within developing countries to fully take advantage of these initiatives due for instance, availability of skilled manpower and other infrastructure to go through the process of accessing these resources and implement the proposed adaptation options. (Pauline Dube, University of Botswana)	Agree. Other initiatives have taken into account
17-807	A	30	4			Section 17.4.1 is an excellent addition to this chapter which had been missing in the Third Assessment Report. But its length could be reduced.	Agree. Length reduced

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						(Upasna Sharma, Indian Institute of Technology, Bombay)	
17-808	A	30	4			Section 17.4.1 is exciting and potentially hugely informative piece of the chapter, providing a sense of the scope of ongoing adaptation activity. I'm unclear why the discussion is limited to an overview of GEF activities and the NAPA process. Important work has clearly been done by a number of bi-lateral agencies, large international NGOs, and others. This work does not fit neatly under "Mainstreaming" since it is climate-driven action. I would recommend a scaled approach to this section where an overview is provided of types (not lots of specifics) of action at intergovernmental, national government, non-governmental and local levels. Without broader coverage (through this scaled, or some other, approach) the section tells perhaps half the story. (Erika Spanger-Siegfried, Union of Concerned Scientists)	Agree. Focus given on their assessments but information is limited
17-809	A	30	4	33		Point 17.4.1: Maybe including tables could help to simplify GEF and NAPA issues ?? (María Isabel Travasso, Instituto Nacional de Tecnología Agropecuaria (INTA))	Do not agree.
17-810	A	30	4	33	49	Sub-section 19.4.1 gave a great deal important information. But the text reads like a document of some organizations. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research, CAS)	Agree. Focus given on their assessments but information is limited
17-811	A	30	6	41	48	"17.4 Section Enhancing adaptation: opportunities and constraints." This section is comprehensive and well structured, however, it does not adequately reflect the evolution of the climate change regime with respect to adaptation and it increased opportunity for financial support, especially the last few years. Since COP7 (2001): the recognition of adaptation (vis-a-vis mitigation) has significantly grown, and the two options are not seen anymore as competitive but two sides of the same coin; four new avenues for supporting adaptation have been created; initial pledges have been made (with a budget of over \$100 million as a start); mechanisms to enhance these initial resources are in place; and the concept that adaptation is about integrating adaptation measures into ongoing and future development plans, projects and activities is clear. It is also understood that at the operational level it is impossible to disaggregate climate change from variability and extremes, and the future adaptation builds on current coping capacity. More resources are constantly	We disagree with this statement. We certainly discussed the opportunities and the initiatives including GEF. We cited GEF sources, however, the GEF site does not have any document that actually assesses the effectiveness of this program.

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						needed, of course, but the lack of recognition of the progress made is a severe shortcoming of this section (and to some extent the entire chapter). In addition, I found several factual mistakes throughout the text. I suggested alternative language and substantiated it with references. GEF documents quoted in my comments are public and available on the web at www.thegef.org . (Bonizella Biagini, Global Environment Facility)	
17-812	A	30	13		36	bullets don't add much and take up a lot of space; Key questions include: How much money is there now vs pledged/projected in the GEF for adaptation and how is this money targeted to help make adaptation happen in LDC? How is this funding fitting into the different funds and what is the function of each of these? How are the functioning of the different funds evolving in reality (compared to original goals). You may want to cite other literature on this e.g. Yamin and Depledge 2004; also Klein has published on this no? (Jan Corfee-Morlot, University College London & OECD)	We decided not to discuss the actual monetary resources available. Because the number is continuously changing. We rather focused on the initiatives.
17-813	A	30	13	33	28	Can shorten dramatically as the level of information is quite detailed but already out of date since the chapter was written. As this is a constantly evolving policy process, the inclusion of such detail will automatically be out of date very quickly and will continue to. Thew section focusses primarily on one source of funding and is not balances with empowering information on resourcse mobilization and actions taken by developing countries themselves. (Liza Leclerc, UNEP)	Agree. Shortened.
17-814	A	30	13	32	30	"section 17.4.1 comment: this GEF sub-section is too detailed and should be referred to other GEF documents." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Shortened.
17-815	A	30	15	30	19	Please briefly define the scope of the new funds. Suggested text: The Least Developed Country Fund (LDCF) was established to support the development and implementation of National Adaptation Plans of Action (NAPAs) for the 48 LDCs; The Special Climate Change Fund (SCCF) was established to address the special needs of developing countries in the ambit of climate change, and whose top priority is adaptation; and The Adaptation Fund (AF), established after the entry into force of the Kyoto Protocol, which directs that 2% of the share of the proceeds	Agree. Included in the new draft.

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						from Clean Development Mechanism (CDM) projects be placed in a fund for adaptation. (Bonizella Biagini, Global Environment Facility)	
17-816	A	30	15	32	30	This section is also out of place and should be replaced by a much condensed version, if at all. I would vote for removing it entirely from the chapter. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Disagree. But condensed.
17-817	A	30	16	35	44	Again, I recommend to check whether the use of all these abbreviations (AfDB, ADB, ... SGP, LEG, EIA ...) is indeed necessary. (see my comment no 49 above). In any case, abbreviations should be used (or not used) in a consistent manner. (Margareta E. Kulesa, Mainz University of Applied Sciences)	
17-818	A	30	17	30	35	Delete (Liza Leclerc, UNEP)	
17-819	A	30	26		50	How does GEF small grants programme relate to adaptation? Or to broader UNFCCC/GEF adaptation efforts? What is the small grants programme and the other sources of funding mentioned in line 24. The lessons from the small grants programme seem relevant but the context for these lessons is not established in the current text. Also the bullet style is distracting and seems disconnected to the broader theme of the section (i.e. climate driven initiatives). Is the Small Grants Programme one such initiative or something else? (Jan Corfee-Morlot, University College London & OECD)	Revised.
17-820	A	30	37			"The UNFCCC (2004)..." - in fact this is incorrect as it is not the UNFCCC that has noted this, but rather the Conference of the Parties. Therefore, correct formulation would be "The COP noted that many of the priority issues..." This applies to most documents published by the UNFCCC (such as decisions, conclusions and other material coming from conferences and workshops) but not to all. However, in that case it is not the UNFCCC that writes things but the UNFCCC secretariat. This distinction is vital because it indicates the level of legality of the documents. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	In the new version, this sentence does not exist.
17-821	A	30	40			"The pledge of..." is only from "some" developed countries, not from all.	Agree

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						(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-822	A	30	41			Same comment as no. 55 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-823	A	30	48	32	30	This section should be updated in light of the Community Based Adaptation pilot program that GEF has agreed to fund, involving both UNDP and the Small Grants Program. (Useful contacts are: Bo Lim (UNDP); Stephen Gitonga (SGP)) (Erika Spanger-Siegfried, Union of Concerned Scientists)	The GEF Section condensed
17-824	A	31	2	31	14	Delete (Liza Leclerc, UNEP)	OK
17-825	A	31	2	31	5	This sentence is very unclear (John Morton, Natural Resources Institute, University of Greenwich)	OK
17-826	A	31	2	31	4	Check sentence:...future guidance from...should read:...future guidance TO... (Frank Sperling, The World Bank)	OK
17-827	A	31	7	31	14	This section needs updating to reflect the latest Bonn agreements on activating global adaptation funds. I understand that the LDC and Special Climate Change Funds are now active. The example of Kiribati should be modified to read " The Republic of Kiribati is one of the first Pacific Island countries attempting to incorporate risk management and adaptation into its national economic planning through its Kiribati Adaptation Program, soon to enter its pilot implementation phase under GEF, AusAID, EC and NZAid financing" (remove references to SAPHE and waste disposal). (Sofia Bettencourt, The World Bank)	Agree. Suggested text incorporated in the new draft
17-828	A	31	7	31	7	The sentence "although global adaptation funds are not yet active at the international level" is incorrect. Please delete and add the suggested text: Of these four avenues for funding adaptation activities, three of them are currently operational (November 2005): the strategic priority on adaptation (SPA), with an initial allocation of \$50 million; the LDCF, with an initial contribution of \$33 million, and the SCCF, with initial pledges of \$34 million. (reference: GEF/C.26/9 "Status Report of the Climate Change Funds"). The GEF will facilitate subsequent pledging meetings to mobilize additional resources for the new funds. (Bonizella Biagini, Global Environment Facility)	Agreed and revised.

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17-829	A	31	7	31	14	It is not clear if the Kiribati Adaptation pilot was part of the POAA strategy, or GEF funded, or what the relation between the pilot and the SAPHE was. (John Morton, Natural Resources Institute, University of Greenwich)	See Comment # 827
17-830	A	31	7			Same comment as no. 55 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-831	A	31	8	31	8	The Kiribati Adaptation Project is supported by the GEF under the strategic priority on adaptation (SPA). The GEF contribution is \$1.8 million. (Bonizella Biagini, Global Environment Facility)	
17-832	A	31	9		14	Seems like this example would be better placed in the previous section on example of adaptation actions taken. Is there a good reason why this is here and not there? (Susanne Moser, National Center for Atmospheric Research)	
17-833	A	31	16	32	16	Abbreviate into one short para. (Liza Leclerc, UNEP)	Condensed in the new version
17-834	A	31	16	31	16	omit "adaptation" (John Morton, Natural Resources Institute, University of Greenwich)	
17-835	A	31	18	32	19	Please delete the sentence: GEF policies were in favour of larger projects. This is a factual mistake. There is no GEF policy that favours large projects, and this statement cannot be substantiated by any references. In addition, some of the most successful GEF projects are under the Small Grant Programme (SGP), up to \$50,000 or Mid-Sized projects (MSPs), up to \$1million. (Bonizella Biagini, Global Environment Facility)	OK
17-836	A	31	18	31	18	After "are observed on a local scale" please add the suggested text: Consequently, the LDCF, SCCF and AF Funds do not follow the incremental cost principle and do not need to generate global environmental benefits (both typical features of conventional GEF operations under the GEF trust fund, which is separate from the new funds). These funds support the additional cost of integrating climate change risks and adaptation measures into development plans and activities. (reference: GEF/C.24/12 "Programming to implement the guidance for the SCCF adopted by the COP to the UNFCCC at its 9th Session"). (Bonizella Biagini, Global Environment Facility)	OK
17-837	A	31	18		30	This information could be part of a general introduction fo the GEF section. The	OK

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						NAPAs are relevant to evolving aid mechanisms for adaptation - part of the climate driven adaptation effort - but you do not need so much detail on the administration of the NAPAs for this sub- section (Jan Corfee-Morlot, University College London & OECD)	
17-838	A	31	21	31	23	Needs updating. Since the activation of LDC and Special Climate Change Funds, the trend is for the Piloting an Operational Approach to Adaptation to focus increasingly on global environmental benefits, whilst the other adaptation funds would also cover incremental development costs. (Sofia Bettencourt, The World Bank)	OK
17-839	A	31	23	31	26	The argument is unclear, as is the period covered by the Small Grants Programme. (John Morton, Natural Resources Institute, University of Greenwich)	OK
17-840	A	31	25			Same comment as no. 55 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-841	A	31	28	32	16	The lessons learned do not bear the last bullet out. Community climate change projects, while good at the local level, often lack national leverage at the institutional and policy levels. See also lessons learned from the Pacific on Bettencourt et al (2005), pages 9-12. (Sofia Bettencourt, The World Bank)	
17-842	A	31	42			SGP is not defined (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-843	A	31	49			in-built should be built-in (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-844	A	32	1	36	2	I'm not sure you can say this in an IPCC report. But all these mainstreaming initiatives are basically organised around climate institutions at the multi-lateral and national level. Where are the development institutions? Where are there examples of the development and climate communities coming together to make development policy and plans at any level? It seems to me that somewhere the text might venture to suggest that this would be a good idea. (John Macintosh Callaway, Forskningscentre RISØ)	Agree. Examples of development institutions are taken into account.
17-845	A	32	18	32	30	Delete or merge into para 1 of this section (Liza Leclerc, UNEP)	Revised

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17-846	A	32	19			Same comment as no. 55 and the dates for COP11 should be adjusted - not just November but November/December. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Does not exist any more
17-847	A	32	24	32	30	The listing of the funds and activities to be reported on could probably be omitted. (John Morton, Natural Resources Institute, University of Greenwich)	OK
17-848	A	32	32			NAPAs. Perhaps this discussion could more critically discuss NAPAs limitations. For example, Huq has warned that it is important that the NAPA process is shaped in such a way to avoid repeating earlier mistakes in development aid that focused on technologically intensive interventions in a top-down fashion rather than on people's livelihoods, adaptation strategies and needs. See also Orindi and Eriksen (2005). (Siri Eriksen, University of Oslo)	Revised
17-849	A	32	32	33	48	Is it possible to describe the methodology by the National Adaptation Programmes of Action (NAPA)? As a researcher and reader I would interest in the methods to develop the adaptation evaluation tools for designing appropriate adaptation strategies and options. In other words, to help to develop the decision support system and tools facilitating dialogue and simulation. (Shiming Ma, Chinese Academy of Agricultural Sciences (CAAS))	No scope here.
17-850	A	32	32	32	40	This needs a clear and succinct statement of what a NAPA is and what its primary objective is. The justifications for NAPAs given are secondary and oblique. (John Morton, Natural Resources Institute, University of Greenwich)	Discussed in the new draft
17-851	A	32	32	33	48	"section 17.4.1 comment: this NAPA sub-section is too detailed and should be referred to other documents." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Condensed
17-852	A	32	34	32	35	Could source the Convention decision itself (more direct) (Liza Leclerc, UNEP)	
17-853	A	32	34			Spell out and explain what NAPA is. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Done
17-854	A	32	34	33	28	I feel that this entire section is out of place here and should be condensed into a couple of sentences describing the importance of adaptation to LDCs. The most	Do not agree.

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						important part comes from lines 30-48. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-855	A	32	35			Least Developing Countries should read Least Developed Countries. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Comments 856-870. The write-up on NAPA shortened and revised in accordance with the comments.
17-856	A	32	38	32	40	source? Interventions by Parties cannot be attributed to the whole on the Subsidiary body. Same for page 33 lines 1 to 3 (Liza Leclerc, UNEP)	
17-857	A	32	42	32	42	Please insert the words "and the implementation" after "to support the preparation [..] of NAPAs". (Bonizella Biagini, Global Environment Facility)	
17-858	A	32	45	32	45	replace treaties with agreements (Liza Leclerc, UNEP)	
17-859	A	32	45	32	47	Delete, inaccurate. (Liza Leclerc, UNEP)	
17-860	A	32	46			Can you say or reference where one can find a list of such efforts? (Susanne Moser, National Center for Atmospheric Research)	
17-861	A	32	47	32	47	Kiribati is not now considered a good example of reduction in rainfall, since most recent validated models seem to point to an increase in average rainfall. Please contact Tony Falkland - who did the most recent water modelling in Kiribati is well advanced in its NAPA, which should be finished by the end of 2005. Other countries may be close to the finishing line as the 4th Assessment report is published. (Sofia Bettencourt, The World Bank)	
17-862	A	32	48	32	48	replace LEG with CoP. The LEG is not a decision making body. (Liza Leclerc, UNEP)	
17-863	A	32	50	32	50	source from CoP9 decision. (Liza Leclerc, UNEP)	
17-864	A	33	11	33	12	delete as not entirely accurate. The NAPAs are not defined as national adaptation strategies but as simple and direct channels of communication for urgent and immediate adaptation needs - quite different from developing a formal policy	

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						(Liza Leclerc, UNEP)	
17-865	A	33	15	33	15	The primary focus of LDC Fund will be on urgent measures. (Sofia Bettencourt, The World Bank)	
17-866	A	33	15			"on measures" - this seems like policy jargon; replace with more specifics (Susanne Moser, National Center for Atmospheric Research)	
17-867	A	33	21	33	28	Does not fit with previous section on sources of GEF funding. These seem to be more general and to identify gaps in adaptation implementation? (Liza Leclerc, UNEP)	
17-868	A	33	23	33	23	an unclear and confusing choice of words (John Morton, Natural Resources Institute, University of Greenwich)	
17-869	A	33	25			add: subnational interests (Susanne Moser, National Center for Atmospheric Research)	
17-870	A	33	30		50	Again bullets here should be changed into text and shortened to be adapted to the needs of this storyline - how does limited experience with NAPAs fit into large picture of evolving internationally funded climate adaptation efforts? What do these case studies represent? Objectives, methods, issues covered - were they connected to government or other forms of decision-making? Were they carried out by practioners? (Jan Corfee-Morlot, University College London & OECD)	

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17-871	A	33	36		41	I didn't think I was going to see anything like this in this entire chapter. You have here in a few deeply hidden bullets, far down in the chapter, a REALLY critical issue (eventually, before you go to press, there will be a paper that makes this point by Coleen Vogel, S. Moser, R.E. Kasperson and G. Debalko. Flag for later! Elevate to Exec Summary status. In the meantime, I HIGHLY recommend, you have a section in this chapter that discusses explicitly the challenges involved on this point. This is non-trivial and a literature is emerging on it. (Susanne Moser, National Center for Atmospheric Research)	
17-872	A	34	0			Section 17.4.2 Mainstreaming -- I am not convinced after reading this that it merits its own section. From where I sit a large part of adaptation should be about mainstreaming. Yet here you seem to suggest that they are different forms of policy action. If left, more emphasis is needed on the sectoral perspective as opposed to scale of governance with examples drawn. But in that case - what is the difference between some of the examples given earlier on adaptation and mainstreaming as referred to here? (Jan Corfee-Morlot, University College London & OECD)	17.4.2 Mainstreaming } This subsection is thoroughly revised by taking into account major comments
17-873	A	34	0	36		Mainstreaming adaptation into national planning processes is a very vital topic. Since the developing countries of Africa will be affected most by climate/global change, it would be most desirable if the author could give an example of an African country where mainstreaming is being done successfully. Such an example may include projects on adaptation to malaria epidemics, assistance to arid and semi arid communities, etc. An interesting reading may be seen at www.aridland.go.ke as an activity in my country Kenya. (Shem Wandiga, University of Nairobi)	
17-874	A	34	1	37	15	17.4.2 The section on mainstreaming is important but may not have quite captured the right essence. Some of the points made in this section could easily come earlier, because they are relevant to how adaptation is being carried out, whether being mainstreamed or not (The last two paras of 17.4.2.2 in particular). The bottom line is that only a limited number of separate plans for adaptation will be made and most of the implementation of those plans will be integrated into ongoing tactical and strategic management.	

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						(Roger Jones, CSIRO)	
17-875	A	34	1			<p>"Comments on the Mainstreaming section of Chapter 17: These comments mainly focus on the barriers to the successful implementation of adaptation policies/strategies. This section does not clearly highlight the range of issues faced by planning systems that ultimately will be responsible for the delivery of the majority of adaptation strategies, particularly at the local level. Planning systems generally do not currently support adaptation to climate change. There is a lack of co-ordination, guidance and support for the development and implementation of adaptation policies. In order to respond effectively to climate change there must be a co-ordinated approach from the national through to the local level. Currently, national guidance is too general and does not provide the necessary framework for delivery. There are also a number of conflicting messages and priorities that undermine the importance of climate change and make it difficult to incorporate adaptation into planning. (Spatial) Planning has a crucial part to play in adapting to climate change. It provides the opportunity to tackle the issue directly rather than retrospectively. By climate proofing our planning policies and strategies before the majority of the impacts of climate change are felt is far more cost-effective than retrospective or reactive planning. Long-term planning decisions need to be made now so that costs are reduced and opportunities maximised.</p> <p>One of the main practical barriers to implementing policies to adapt to climate change is not knowing how or what to do to tackle climate change at the local, detailed scale. There is a lack of guidance and best practice at the practical delivery level. Guidance exists which provide broad principles on the need to incorporate adaptation into planning policies and processes. There is however very little guidance on how this can realistically be delivered at the local scale, including how to prioritise climate change against other, sometimes conflicting, priorities. Uncertainty of the impacts of climate change is often used as a reason for the lack of an integrated planning response. This is not an acceptable excuse as other issues such as economic growth and housing needs are also based on uncertain estimates. There are a number of areas where the impacts of climate change have already been</p>	

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						<p>felt (e.g. water resources, flooding and coastal defence). Adaptation policies and future proofing in these areas would ensure better decisions are made now and in the future, thereby reducing risk and cost. Major changes in planning to infrastructure or settlement patterns would have high cost implications and would therefore need careful consideration.</p> <p>Another key barrier is timescales. Current planning systems have a very short timescale of 5 or 10 years. Climate change is a long term issue that cannot be adequately tackled if we don't look beyond the immediate future.</p> <p>Conflicting priorities and messages is also a major barrier to effective adaptation. Climate change is currently not given the recognition and priority it deserves. Many other policies take precedence over climate change considerations, undermining or conflicting with them, especially when looked at in the short term. Behaviour change is also a fundamental requirement to adaptation and mitigation. This change needs to occur among both professionals and the public. This is a major barrier to effective adaptation and must be addressed."</p> <p>(Chitra Nadarajah, Hampshire County Council)</p>	
17-876	A	34	1	34	36	<p>What about the downsides of mainstreaming. Why are so many developing countries opposed to, or at least uncertain about, mainstreaming. Have you assessed the African Negotiators views on mainstreaming.</p> <p>(Ian Noble, The World Bank)</p>	
17-877	A	34	1	41	48	<p>Most words gave an abstract description. More figures and tables with case studies may be easy for reading and understanding. For example, when we introduce the "17.4.2.1 Current mainstreaming initiatives", using table method to introduce the mainstreaming may be good from international, regional, national, subnational and community levels.</p> <p>(Guangsheng ZHOU, Institute of Botany, the Chinese Academy of Sciences)</p>	
17-878	A	34	5			<p>Section 17.4.2 - there are a number of people who find the term "mainstreaming" to be not only outdated but also a policy tool to leverage funds by being as inclusive of all major "trends" as possible (i.e. climate change adaptation being one of those intellectual trends, even if it is important)</p> <p>(Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)</p>	

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17-879	A	34	7			Add to references: Goklany (1992, 2000, 2005). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-880	A	34	11	34	14	This is an important point, while it is important to point out that development and adaptation should not be assumed to be the same. Identifying the particular types of development measures that promote adaptation is an important challenge. (Siri Eriksen, University of Oslo)	
17-881	A	34	13			after arrangements, add "without increasing negative ecological and environmental side effects" (Susanne Moser, National Center for Atmospheric Research)	
17-882	A	34	14			Add reference to Goklany (1992, 1995) to sentence ending on line 14. (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-883	A	34	14	34	16	Check sentence: awkward formulation (Frank Sperling, The World Bank)	
17-884	A	34	15			the foundation? - should it be mechanisms? (Susanne Moser, National Center for Atmospheric Research)	
17-885	A	34	18	34	20	Wording: Hopefully we are not trying to integrate vulnerability itself into policies but the consideration of vulnerability or vulnerability reduction into policies.... (Liza Leclerc, UNEP)	
17-886	A	34	18	34	42	Re definition of mainstreaming: In the POVCC report (AfDB et al., 2003) a distinction was made between "mainstreaming" and "integration" adaptation as this issue was raised by several agencies during the writing process. "Mainstreaming" was used as term when considering climate change issue in decision-making processes such as planning and budgeting. It has hence a programmatic focus. Integration is used when referring to specific adaptation measures, which are added to the project design or implementation of strategies. Please consider whether this distinction is useful for the purpose of your assessment. (Frank Sperling, The World Bank)	
17-887	A	34	21	34	21	Add "building codes". (Sofia Bettencourt, The World Bank)	
17-888	A	34	23		24	Replace "The term 'mainstreaming' in this report refers to" with "Examples of 'mainstreaming' may include"	

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						(Susanne Moser, National Center for Atmospheric Research)	
17-889	A	34	33		42	Could these be moved up into 17.1.1. general concepts discussion? (Jan Corfee-Morlot, University College London & OECD)	
17-890	A	34	33	34	42	This paragraph repeats general considerations on vulnerability and does not add to an argument specifically on mainstreaming (John Morton, Natural Resources Institute, University of Greenwich)	
17-891	A	34	33		34	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	
17-892	A	34	33	34	34	"The vulnerability of a country or a community..." this sentence is highly repetitive of information that has already been repeated numerous times throughout the chapter and does not add any additional value here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-893	A	34	33	34	42	The entire paragraph seems redundant in this section (17.4.2.1) as it does not provide any information about what the current mainstreaming initiatives actually are. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-894	A	34	33	34	38	Has this been said previously ? If so perhaps can be cut and the references placed appropriately in the following sentences. (Mark Tadross, University of Cape Town)	
17-895	A	34	33	34	46	"section 17.4.2.1 comment: delete these lines (repetitive)" (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	
17-896	A	34	35	34	37	Reducing vulnerability can also be achieved through addressing the causes of vulnerability. Perhaps this section could also discuss whether mainstreaming into existing policies is sufficient to address causes of vulnerability if, for example, the current policies and institutions form part of marginalisation processes causing vulnerability among certain groups. Adaptation may reveal the need to completely scrap or reform some policy structures and completely new interventions and policies be added? (Siri Eriksen, University of Oslo)	
17-897	A	34	38			Add a new sentence beginning on line 38 as follows: "Goklany (2005b), noting that	

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						many of the determinants of adaptive capacity, which also double as indicators of sustainable development, also tend to reduce total fertility rate, suggests that strengthening these determinants should reduce the overall population exposure to the adverse impacts of climate change, while also contributing to mitigation and mitigative capacity (see, also, Goklany 1995, 1999a). Over the next several decades, this might be as effective a method of limiting damages from climate change as any." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-898	A	34	41	34	42	Sentence "Vulnerability can also be reduced" - after such a long discussion on adaptive capacity in the previous sections, this sentence re-introduces a new way to relate vulnerability and adaptive capacity and is both confusing and repetitive. Furthermore, it is not necessary to add this here when talking about mainstreaming and should be cut (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-899	A	34	42	34	32	It is worth noting that the mainstreaming of disaster risk reduction into development policy and practice is also being argued for and many of the same arguments are being made. This opens a great opportunity for collaboration and learning between the two communities. For a ref on linkages between disaster risk reduction and climate change mainstreaming see Schipper, L. and Pelling, M. (2005) Disaster risk, climate change and international development: scope and challenges for integration, Disasters (in press). (Mark Pelling, King's College London)	
17-900	A	34	48		50	I'm not sure this example is very enlightening; can you clarify or replace or omit? (Susanne Moser, National Center for Atmospheric Research)	
17-901	A	35	1	35	44	While I recognise that this section is providing examples of international, regional and national-level activities, it seems more like a literature and project review than an assessment of various levels of interventions. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-902	A	35	2		4	at national scale or some other scale? (Jan Corfee-Morlot, University College London & OECD)	

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17-903	A	35	3	35	3	Abbreviation (AIACC) not indicated in full. (Maggie Opondo, University of Nairobi)	
17-904	A	35	3	35	12	Acronyms are not defined earlier (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-905	A	35	3	35	3	AIACC should be spelled out (Mark Tadross, University of Cape Town)	
17-906	A	35	7		12	focused on national planning and on multilateral dev programmes? (Jan Corfee-Morlot, University College London & OECD)	
17-907	A	35	14	35	19	Please note that the MACC, CPACC and PICCAP (enabling adaptation in the Pacific) are GEF-supported projects with, respectively, \$5 million (MACC), \$6.8 million (CPACC) and \$2.4 million (PICCAP). (Bonizella Biagini, Global Environment Facility)	
17-908	A	35	14	35	44	One issue that does not really appear in this chapter apart from in discussing these Caribbean projects is the role for adaptation to reduce vulnerability to disaster risk as well and how this is being taken up by the ISDR and other disaster bodies (IFRC). If you intend to keep section 17.4.1. you need to mention that work as well. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-909	A	35	26		35	UKCIP examples are valuable here - also they bridge between community or subnational regional levels and national government decisionmakers, business and other actors in decision making process. A key feature of the programme is its awareness raising function - use of med and It climate forecasts to provide a set of predictions to stimulate visions about policy for the future. (Links could be made here between this discussion and adaptation examples earlier) (Jan Corfee-Morlot, University College London & OECD)	
17-910	A	35	26	35	44	Can be summarised by highlighting the key issues to keep within the maximum page length. (Maggie Opondo, University of Nairobi)	
17-911	A	35	30	35	30	remove 'in fact' (Mark Tadross, University of Cape Town)	
17-912	A	35	31			Defra STILL funds the UKCIP. The past tense should not be used here. (Richenda Connell, Acclimatise)	

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17-913	A	35	35			The UKCIP, 2005 ref here should be amended to West and Gawith, 2005 - see comment 3 above. (Richenda Connell, Acclimatise)	
17-914	A	35	37	35	44	References to EIA (here and on page 12, line 1-5) should refer to the debate on the challenges with the effectiveness of EIA in general and its application to climate change in particular. For the latter, it has been argued that weaknesses with traditional EIAs are that they would not necessarily address the broader implications of a project on future vulnerability (e.g. Burton and van Aalst, 1999). Strategic Environmental Assessments (SEAs) have been suggested as more appropriate than EIA, in that they could affect what strategic choices are made for development pathways, and not only how particular projects are implemented. (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	
17-915	A	35	37	35	40	References are missing. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-916	A	35	46	36	2	Examples of mainstreaming for both sub-national and community levels may be drawn from CCDF experiences. RVCC project implemented in Bangladesh offers a lot of examples at Community levels. (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-917	A	35	46	36	2	Given the numerous examples of coastal zones - an e.g. on drought could provide some variation. (Pauline Dube, University of Botswana)	
17-918	A	35	46			Lack of a specific example at the sub-national scale (compared to the specific examples at the national scale makes that small section appear as speculation (C. Gregory Knight, Pennsylvania State University)	
17-919	A	35	46	35	48	An example here could be the CARE project entitled "Reducing Vulnerability to Climate Change (RVCC)" in Bangladesh. (http://www.careusa.org/careswork/projects/BGD076.asp) (Lars Otto Naess, Center for International Climate and Environment Research, Oslo (CICERO))	
17-920	A	35	46	36	2	Instead of simply mentioning a possible example of mainstreaming at the sub-	

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						national scale and the community scale, it maybe more useful to provide concrete practical example. A source for practical examples at the sub-national and community scale could be the UK Climate Impacts Program. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-921	A	35	46	36	2	are there no citable references that can be inserted for these cases ? (Mark Tadross, University of Cape Town)	
17-922	A	35	46	35	48	This should be expanded and some examples added. (Gina Ziervogel, University of Cape Town)	
17-923	A	35	50	36	2	The same comment: lack of a specific example--even one--is conspicuous. (C. Gregory Knight, Pennsylvania State University)	
17-924	A	35	50	36	2	Here you might want to put in some of the results from studies of community climate forecast application. The most recent of these, (Patt, Anthony, Pablo Suarez, and Chiedza Gwata (2005). Effects of seasonal climate forecasts and participatory workshops among subsistence farmers in Zimbabwe. Proceedings of the National Academy of Sciences of the United States of America 102: 12673-12678.) was a pilot project in rural Zimbabwe, to incorporate annual climate forecast workshops into people's schedules before the planting season. The results indicated first that people who did attend the workshops were more likely than those who had heard the information through other channels actually to apply the information to their decisions, and second that the people who applied the forecasts to their decisions enjoyed significantly higher harvests than those who had not. (Anthony Patt, Boston University)	
17-925	A	36	0			Section on Constraints and Opportunities: There is very little mentioning (as in the entire chapter) of links with disaster risk management, which provides an opportunity as well as a challenge. The opportunity is related to increasing convergence in agendas due to the pro-active focus on vulnerability reduction and the chance to benefit from each other's methodologies and practical experiences. The challenges are associated with appropriately recognizing important conceptual differences, e.g. disaster risk management encapsulates multiple hazards, which may or may not be of hydro-meteorological origin, while climate change addresses changes in climate extremes, but also more subtle changes in climate variability and average climatic conditions. Because disaster risk	

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						<p>management and climate change strategies are often addressed within the same institutions, but by different professional groups it is important that there is clear communication on the overlapping issue of climate change. This also applies on the country level where climate change is often attended to by environment ministry while disaster risk management is often dealt with by civil defense (which can partly be historically explained by the evolution of both fields). Furthermore, policy processes are also separated and attended often by delegates with different affiliations limiting the information exchange. I would humbly like to recommend the inclusion of the discussion paper "Disaster Risk Management in a Changing Climate" (Sperling and Szekely, 2005), which was written on behalf of the Vulnerability and Adaptation Resource Group (VARG), a network of bi- and multilateral agencies concerned with the impact of climate change on development processes. The discussion paper was presented at the World Conference on Disaster Reduction (WCDR) and subsequently at the UNFCCC to raise on awareness on the inter-linkages between disaster risk management and climate change and foster a closer collaboration. VARG is now following up with country level studies on this theme.</p> <p>(Frank Sperling, The World Bank)</p>	
17-926	A	36	1	36	2	<p>References should be provided for these examples.</p> <p>(Gina Ziervogel, University of Cape Town)</p>	
17-927	A	36	2			<p>Cite the Moser 2005 reference provided above (forthcoming in GEC) here.</p> <p>(Susanne Moser, National Center for Atmospheric Research)</p>	
17-928	A	36	4			<p>Section 17.4.2.2: This section as it stands is repetitious and unfocused, insufficiently addressing mainstreaming. The chapter having previously introduced (p.8 line 7 et seq.) the distinction between levels of adaptation - to climate variability, observed trends and models -, this section now views adaptation to climate variability as fundamentally different to adaptation to climate change, and tends to assume (without stating this explicitly) that "conventional climate change adaptation measures" are those practiced by governments and donors. As a result, while the sense that governments and donors should enhance existing individual, household and community level adaptive capacity does eventually emerge, some statements that appear very questionable are made along the way, e.g. p.36. line 7</p>	

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						and p.36 line 20. The last para, p.37 lines 8-15, seems to restate previous conclusions in a different way. (John Morton, Natural Resources Institute, University of Greenwich)	
17-929	A	36	4	36	4	Section 14.4.2.2 - the heading "Constraints to and opportunities for mainstreaming" may be a more specific heading title. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-930	A	36	6	37	15	Section can be shortened and draw from examples other than international organizations; Also, if public awareness is considered here as part of mainstreaming then there are programs being implemented under Article 6 (Education, Training, Public Awareness) that are doing this; also programs under the NePAD to train the economists in the 5 African Economic Unions on implementing MEAs, NAPAs also have an element of mainstreaming, etc. (Liza Leclerc, UNEP)	
17-931	A	36	7			Add a sentence after "at each level" about what this would mean. It's unclear now. (Susanne Moser, National Center for Atmospheric Research)	
17-932	A	36	13	36	15	Sentence "Institutional constraints to climate change adaptation..." - in fact this is not really addressed in Section 17.4.2. as suggested here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-933	A	36	13	36	20	remove last sentence of first paragraph. Is not the first sentence of the second paragraph already explained in the first paragraph ? (Mark Tadross, University of Cape Town)	
17-934	A	36	15	24	15	".. section 17.4.3 ..." (Margareta E. Kulesa, Mainz University of Applied Sciences)	
17-935	A	36	17	36	20	The AIACC project (adaptation synthesis and papers) reports on several existing community-based adaptation good practices. The AIACC project therefore contradicts the point raised here. (quoting Huq et al. , 2003). (Bonizella Biagini, Global Environment Facility)	
17-936	A	36	17			Incomplete reference lists?? (C. Gregory Knight, Pennsylvania State University)	
17-937	A	36	17		50	Throughout this entire section there is not one reference to papers coming out of the Regional Integrated Sciences and Assessment (RISA) Program in the US - which is	

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						a big omission, as that is the premier program in the US practicing science-stakeholder interactions around climate variability and change issues. Much relevant experience is being gained there. (Susanne Moser, National Center for Atmospheric Research)	
17-938	A	36	17	36	32	I think this is solid material, but it is largely from a developed country or international NGO point of view. What do governments and other institutions in developing countries really feel about adaptation, be it to current climate variability or to medium and longer term change? What messages do we get from the submissions made to the UNFCCC on its plan of action? How does a developing country tackle adaptation without a guaranteed income stream or a guaranteed budget line? (Ian Noble, The World Bank)	
17-939	A	36	20	36	42	The reference to the GEF in this section is wrong. The GEF is a financial mechanism of the UNFCCC and assists developing countries to address climate change-related issues. However, at the operational level it is impossible to artificially disaggregate climate change from current variability and extremes. Consequently, the GEF supports adaptation interventions to reduce vulnerability and increase adaptive capacity to the adverse impacts of climate change, including variability and extremes. This assumption applies to all the existing GEF-managed avenues to support adaptation interventions, including the SPA, the SCCF, the LDCF (and eventually the AF). Reference: GEF/C.27/Inf.10 Operational Guidelines for teh strategic Priority Pilotimng an Operational Approach to Adaptation (SPA), page 6 "GEF will support adaptation measures [...] aimed at coping with current variability as well as climate change. (Bonizella Biagini, Global Environment Facility)	
17-940	A	36	22	36	22	GEF acronym already spelt out (Mark Tadross, University of Cape Town)	
17-941	A	36	25	36	28	The sentence's statement of a disregard for long-term trends mixes different scales. As commented earlier the emphasis on the now and disregard for long-term trends may make sense on the community level. The challenge is to ensure that measures on the governance level address these short term needs while avoiding to provide the wrong incentives and frameworks that would create development paths that	

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						would be mal-adaptive to climate change and difficult to adjust over time. At the institutional level there is certainly much work to be done, but let's be realistic. It is a fairly new issue and the push for adaptation (as a complementary measure) is much more recent in the policy realm than the push for mitigation. In that sense there has been considerable shift in many organizations and adaptation concerns have become much more prolific in recent years. This includes simple awareness raising, such as the report "Poverty and Climate Change" (AfDB et al. 2003), which by being written by ten agencies and received high level support reflects some broader level recognition of the issue's importance, the increase in adaptation activities undertaken by agencies, as well as recent high level political developments (see G8 communique), which strengthened the recognition of the need for adaptation from developing countries and has triggered follow-up activities within several development agencies. Sure, much is to be done in moving from the talk to implementation, but the need for adaptation increasingly on the radar screen within the broader development context. The challenge is the operationalization (the shift from the awareness of the problem to concrete measures) as still concrete guidance and risk screening measures are missing and different perspectives on who should fund what limit the scope of what can be done. Recent political developments may help to increase the momentum for mainstreaming adaptation and reducing the vulnerability of development processes by resolving some of these outstanding issues. Furthermore, ongoing pilot studies begin to reveal possible ways of dealing with projected climate change impacts on a practical level (e.g. Vergara 2005). (Frank Sperling, The World Bank)	
17-942	A	36	26		28	Add a sentence on why that is so. (Susanne Moser, National Center for Atmospheric Research)	
17-943	A	36	34	36	42	This paragraph is conceptually wrong for the reasons explained above. The new funds (LDCF and SCCF) are especially aimed at addressing the adverse impacts of climate change with respect to food security and agriculture, access to and management of water resources, health, disaster preparedness and other key development sectors. Please edit accordingly. (Bonizella Biagini, Global Environment Facility)	

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17-944	A	36	36		42	This paragraph calls for references (Susanne Moser, National Center for Atmospheric Research)	
17-945	A	36	36	36	38	"This approach is problematic.....decades from now." While this statement does sound like common sense, isn't it after all an assumption that people are more interested in adapting to stress of today and tomorrow than that could possibly occur several decades from now. To support the statement one could maybe cite from literature on risk perception. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-946	A	36	44	37	15	All concepts highlighted in these two paragraphs are included in UNFCCC convention guidance to the LDCF and the SCCF. (Bonizella Biagini, Global Environment Facility)	
17-947	A	36	46	36	46	are some of these older references in the TAR ? (Mark Tadross, University of Cape Town)	
17-948	A	36	47		49	could cite Jones 2001 and natural hazards examples here (Jan Corfee-Morlot, University College London & OECD)	
17-949	A	36	49			Insert, after the period on line 49, the following: "Accordingly, in addition to enhancing adaptive capacity, Goklany (2000) would focus on reducing vulnerability to specific climate-sensitive problems and hazards that are urgent today and might be exacerbated by climate change (e.g., hunger, infectious diseases such as malaria, water shortages coastal flooding, threats to biodiversity), arguing that measures to address these hazards and threats today would also help societies cope with the impacts of climate change, when they occur in the future. His analysis indicates that for the next several decades, the global benefits of such an approach would exceed those accruing from any mitigation scheme while also costing less, mainly because this approach focuses on current high priority problems (Goklany 2003, 2005). Moreover, addressing these problems now would advance sustainable development because these climate-sensitive hazards are themselves barriers to sustainable development (Goklany 2005b)." In addition, it should be noted such an approach -- with respect to limiting damages from hurricanes or heat waves, for instance -- allows one to focus on developing faster solutions to urgent problems rather than getting bogged down in disputes over what fraction of the problem is due to natural variability and what fraction due to CC, a	

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						question which has no quick answer at this time. (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-950	A	36	49	36	50	I would replace everything on p. 36 following the period on line 49 with the following: "More generally, since the determinants of adaptive and mitigative capacities (e.g., availability of technological options, and access to economic resources, social capital and human capital) largely overlap and are themselves indicators of sustainable development (e.g., per capita income; and various public health, education and research indices), advances in sustainable development would also advance adaptation, mitigation and sustainable development. General approaches to accomplishing these concurrent objectives range from broadly moving sustainable development forward (by developing and/or nurturing institutions, policies and infrastructure to stimulate economic development, technological change, human and social capital, and reducing specific barriers to sustainable development) to-- as noted previously -- reducing vulnerabilities to urgent climate-sensitive risks that hinder sustainable development (Goklany 2005b). A specific approach would be the pursuit of the Millennium Development Goals, which estimates suggest would cost in the range of the Kyoto Protocol (about 0.5% of GDP of nations participating in the Protocol in 2010) but provide far greater benefits, particularly for the next few decades (Goklany 2005). The resulting sustainable economic development would, moreover, also help reduce birth rates, which could mitigate climate change and reduce the population exposed to climate change and climate-sensitive risks, thereby reducing impacts, and the demand for adaptation. These approaches are compatible with the recognition of analysts in the climate change adaptation field that adaptation initiatives..." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-951	A	36	50	37	6	These sentences are simply a repetition of issues and concepts covered earlier. These could be avoided or rephrased or merged with the other relevant paragraphs. (Upasna Sharma, Indian Institute of Technology, Bombay)	End of 17.4.2 Mainstreaming }
17-952	A	37	0			Section 17.4.3. on limits to adaptation is written only in terms of UNFCCC/international scale -- why? Other scales would seem to equally or more relevant to the discussion. Also focus is on barriers to adaptation rather than on elements of each dimension (e.g. institutional; social & cultural) which limit	We have refocused section 17.3 on the limits to adaptation, emphasizing factors that are limits from the individual to international levels.

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						adaptation per se. If rephrased these features both enable and limit adaptation whereas barriers only slow or block action. (Jan Corfee-Morlot, University College London & OECD)	
17-953	A	37	0	41		There are also Environmental barriers to adaptation ... some adaptations simply do not fit the changed environment; the older book by Walter Firey, Man (sic), Mind and Land, in which land is the surrogate for ecological barriers to change. (C. Gregory Knight, Pennsylvania State University)	We have included a section on environmental limits
17-954	A	37	1		2	unnecessary repeat? (Susanne Moser, National Center for Atmospheric Research)	Previous section
17-955	A	37	1	6		This does not mention the US National Assessment - rather strange; there have been several articles that describe parts of the NA process, and the most comprehensive one has just been done for the NRC Human Dimensions Committee under Paul Stern and Tom Dietz, looking at participatory processes in env. decision-making and in assessments. (Susanne Moser, National Center for Atmospheric Research)	Previous section
17-956	A	37	3		5	statement that participatory methods need attention is one that I would support and I think is grounded in the literature however it seems at odds with methods discussion in earlier section on adaptation assessment methods (see comments above) (Jan Corfee-Morlot, University College London & OECD)	Previous section
17-957	A	37	4			should been to be should have been (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Previous section
17-958	A	37	11	37	15	The following segment of this sentence "Adaptation to climate-related hazards will become closely related to development programs" maybe replaced by "Opportunities for mainstreaming adaptation to climate change lies in development programs and...." (Upasna Sharma, Indian Institute of Technology, Bombay)	Previous section
17-959	A	37	16			The most effective way to enhance adaptive capacity is development. This option is not discussed in the chapter, but it is in the literature (Dowlatabadi, Mendelsohn, Schelling, Tol). (Richard S.J. Tol, Uni. Hamburg)	Previous section

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17-960	A	37	18			The subtitle makes no sense (C. Gregory Knight, Pennsylvania State University)	Has been changed to "Limits to adaptation"
17-961	A	37	18			Section 17.4.3: It is not clear how this section relates to the previous discussion on adaptive capacity: are the barriers constitutive of a lack of capacity, or problems in realising it, or both? (John Morton, Natural Resources Institute, University of Greenwich)	We define limits as the conditions or factors that render adaptation ineffective as a response to climate change.
17-962	A	37	18			take "migration" out of the title, maybe delete all in parentheses) - migration is a red herring and what's in parentheses is not necessary. (Susanne Moser, National Center for Atmospheric Research)	Has been removed
17-963	A	37	18	41		Section 17.4.3 Is not strong and needs more work. The opening paragraph (lines 22-25) is so obvious to not be worth flagging up in some a blatant way. Further, it is based on just one reference so the statement 'in the literature' is rather grand. Why arent environmental constraints flagged? They are vital, and the preceeding text does make a lot of implicit and some explicit references to environmental constraints on adaptation. This is also a very negative section to end the chapter on. Some of the components of the section do deal with overcoming constraints, but a separate section pulling this issue together would be very good and more positive (David Thomas, University of Oxford)	The section has been revised substantially, and environmental limits have been flagged. Ending the chapter with a negative section (i.e., limits) does not mean that adaptation is not an effective response to climate change, but that there is a need to focus research on the feasibility, costs, effectiveness, and the likely extent of their implementation.
17-964	A	37	20	37	25	This covers everything and so is not not useful (Liza Leclerc, UNEP)	
17-965	A	37	20			Brooks 2003 should be 2003a, or 2003b (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Have removed this reference because I could not find the reference to the limits listed (they were presented as parts of adaptive capacity).
17-966	A	37	21	37	25	What about "economic" limits other than financial ones? (Margareta E. Kulessa, Mainz University of Applied Sciences)	"Financial" is more specific in that it captures issues related to money or other liquid resources, the granting of credit, making of investments, and the provision of banking facilities. Economic limits are broader, in that it relates to the production, distribution, and consumption of goods and services.
17-967	A	37	21		25	list of bullets seems rather limited. What about ecological/environmental effects?	We have included ecological/environmental

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						(Susanne Moser, National Center for Atmospheric Research)	effects.
17-968	A	37	30			"New Delhi Five-Year Work Programme" - there appears to be a confusion here between the New Delhi Work Programme on Article 6 (Education, Training and Public Awareness) adopted by COP 8 and the Buenos Aires (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	We have removed this sentence from the document.
17-969	A	37	36	37	45	Financial Barriers. This para seems to imply that CC should currently have a higher priority for people in poverty. Since this case has yet to be made (see, e.g., Goklany 2003, 2005, 2005b), it should be noted that it may be quite rational for the poor to give precedence to more immediate problems (see Goklany 1999a). (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Point has been taken.
17-970	A	37	36	37	45	1st para on Financial Barriers: Please check correctness of statements and include references, especially that "working with the poor is expensive". Ongoing project work in Ecuador and Peru show that there is a range of simple activities, which, if implemented, have the potential to reduce climate related vulnerabilities considerably. Communities place also a strong emphasis on addressing near term vulnerabilities, which in their situation makes great sense. Efforts should focus on addressing existing vulnerabilities there. The challenge is that local level efforts link up with higher level efforts, which should not create incentives for activities that are detrimental in the long run. Certainly, there also other pressing development issues at a variety of levels. This is why a mainstreaming effort within the development context is crucial that takes a comprehensive climate risk management approach and distinguishes between priorities at different levels (see Burton and van Aalst, World Bank 2004; AfDB et al. 2003 and others). (Frank Sperleng, The World Bank)	We have removed this sentence and incorporated the idea that many adaptations can be done at small cost.
17-971	A	37	37	37	45	Donors also provide perverse incentives by rushing in with disaster reconstruction efforts, but investing little in prevention and climate-proofing of investments (Sofia Bettencourt, The World Bank)	No longer applicable
17-972	A	37	37	37	45	Suggestion: after "barriers to this pledge" line 41, refer to line 40, page 30 (chapter 17, IPCC fourth assessment report) and mention that the pledge of \$410 million per year also demonstrates a sustained commitment to the new adaptation-related funds. This major financial commitment must be recognized, even though more resources are needed.	No longer applicable

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						(Bonizella Biagini, Global Environment Facility)	
17-973	A	37	37	37	45	This section can benefit from section 17.4.2.2. lines 34 to 42 (Pauline Dube, University of Botswana)	No longer applicable
17-974	A	37	37	37	39	[1] Replace "climate change" with "extreme weather events" on line 37. [2] Modify the end of the first sentence as follows: "...development efforts must be addressed (Christoplos et al. 2001, REGARDLESS OF WHETHER THE RISKS ARE DUE TO CLIMATE VARIABILITY, CLIMATE CHANGE OR A COMBINATIION OF BOTH (GOKLANY 2005))." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	Have included this point in the text.
17-975	A	37	41	37	43	There is need to elaborate what is meant by "working with the poor is expensive" (Pauline Dube, University of Botswana)	Sentence has been deleted from text.
17-976	A	37	41			sentence ending "poverty are barriers to this pledge." - It would be good to have some references to support this statement. The AfDB et al publication could be one of these (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable
17-977	A	37	42	37	42	How is working with the poor expensive? Is there a reference for this statement? (Upasna Sharma, Indian Institute of Technology, Bombay)	Sentence has been deleted from text.
17-978	A	37	43	37	45	The point here is important because in my experience working now within the fields of water management and agriculture, it strikes me that these experts see climate change only as one of the very many other issues that affects development but do not necessarily see it as the most significant factor. For us climate change adaptation people, climate change impacts override all other factors and need to be addressed in order to minimise adverse effects of other negative impacts since climate change affects almost everything that poor people (particularly those involved in agriculture) deal with in their livelihoods. But from the other perspective, climate change, or adapting to climate change which in this case is the same thing, is not always considered a priority issue. This may certainly come as a shock to those of us who have been very focused on promoting the climate adaptation agenda, but while most recognise that climate change is an important factor, they see things like rehabilitation of irrigation systems, the spread of vector borne diseases as a result of poor water management practices, lack of knowledge	Comment taken into consideration – included in sections on social and cultural limits, and in institutional and political limits.

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						and capacity to operate and maintain irrigation systems or store rainwater, as more significant barriers to enhanced economic development. By stressing the integrated approach ("mainstreaming") without necessarily calling in mainstreaming, it is possible to overcome the need to prioritise between adapting to climate change and supporting economic development. I don't actually think the difference in perspective is problematic because I think that autonomous adaptations will take place when needed. Maybe such adaptation will be reactive rather than anticipatory, but ultimately if necessary adaptation will take place. The barriers that stand in the way of adaptation measures being effective or of vulnerability being reduced is where we need to focus our energy, not on converting those who believe economic development is a priority over adaptation. Of course, if economic development activities explicitly increase vulnerability or go against adaptation needs, this is a problem; however this situation will not necessarily be avoided if we prioritise adaptation over economic development. Furthermore, the two should be hand-in-hand and not ranked as one above the other. See page 41, lines 26-29 which supports this point. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-979	A	37	45			(ref???) to be deleted or completed (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	No longer applicable
17-980	A	37	45	37	45	this statement definitely needs a reference (Mark Tadross, University of Cape Town)	No longer applicable
17-981	A	37	47	37	49	1st and 2nd sentence not obviously related. 1st sentence is on prevention and second on response. (Liza Leclerc, UNEP)	No longer applicable
17-982	A	37	49	37	49	Post-emergency reconstruction... you could add the following refs where these arguments are expended on DFID (2005) Disaster Risk Reduction: a development concern, DFID, London; Tearfund (2003) Natural disaster risk reduction: the policy and practice of selected institutional donors, Tearfund. (Mark Pelling, King's College London)	Taken into account in the text
17-983	A	38	0	39		Institutional barriers subsection: this generic discussion seems to have international scale as main frame of reference - why? Institutional barriers to adaptation are as or	Section has been rewritten to include multiple scales.

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						more relevant at the national, regional and local scales -- need also to discuss agency and state vs non-state actors and their roles in adaptation. Surely there must be a richer literature than this? (Jan Corfee-Morlot, University College London & OECD)	
17-984	A	38	1	38	8	An important point here is that efforts to respond to a disaster may lead to increased vulnerability to other hazards - i.e. to higher risk. This has been well documented by Ben Wisner in his 2001 paper in Disasters on how people in El Salvador who had lost their houses during hurricane Mitch in 1998 were at higher risk to the 2001 Earthquakes because relief agencies had given them temporary housing only, which then collapsed during the earthquakes. This dependency syndrome is not only evident among poor communities, but also in governments. The Government of El Salvador should have ensured that the temporary shelters from 1998 were transformed into proper housing by 2001, however they did not. The fault also lies heavily on the NGOs who provided shelter but then ran out of money to help further - as Anderson and Woodrow (1998) argue, NGOs have a responsibility to ensure that interventions during relief operations do not counteract long-term goals for sustainable development. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable
17-985	A	38	1			"Natural disasters" - see comment No. 20 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Could not find comment 20, but changed "natural disaster" to disaster or climate-related disasters in the text.
17-986	A	38	6	38	8	Disaster insurance may not work in developing countries highly reliant on disaster aid, since donor reconstruction aid effectively replaces incentives for disaster insurance (see some of the recent work by Paul Freeman in this regard). (Sofia Bettencourt, The World Bank)	Point taken into account in the revised text.
17-987	A	38	6		8	suggestion that insurance industry is a resource for dealing with climate risk is misleading. A resources for whom in what parts of the world? This presumes that functioning property markets exist worldwide which simply is not true and even if it were, insurance is only an option for those who can access it ie. those with a certain amount of wealth and resources to start with. (See line 16-25 -- the bottom line is that insurance markets are also constrained.) (Jan Corfee-Morlot, University College London & OECD)	We have expanded discussion of the limits to insurance as an adaptation strategy.

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17-988	A	38	6	38	8	Can introduce concept and risk of "moral hazard" relate to insurance and behaviour. (Liza Leclerc, UNEP)	Lack a reference to this point.
17-989	A	38	6		8	Two problems here: First, the insurance industry is also seeing other ways than risk sharing or increasing premiums to reduce its exposure (e.g., getting out of hazardous areas), which would leave many far more vulnerable and adaptive capacity down. Second, there are additional mechanisms besides insurance that are not at all mentioned here, but that are also increasingly implemented: shareholder actions to mandate that industries better account for climate risks, and litigation or threats of litigation to get action going. For both of these there is a growing literature. (Susanne Moser, National Center for Atmospheric Research)	We have expanded discussion of the limits to insurance as an adaptation strateg, and included mention of other risk-pooling mechanisms.
17-990	A	38	8			"risk mitigation through the power of the market" : in case of public works, the benefit will be enjoyed by anybody in the area. However, its very difficult for e.g. local government in developing countries to recover the benefit from citizens through taxation. Therefore, even well benefitable adaptation program is not sustainable. (Hideyuki Kobayashi, Ministry of Land, Infrastructure and Transport)	We have expanded discussion of the limits to insurance as an adaptation strategy.
17-991	A	38	10	38	10	Presumably the World Disasters Report is intended (John Morton, Natural Resources Institute, University of Greenwich)	Reference to this has been removed from text.
17-992	A	38	10	38	25	Rather than using the same references over again, you could maybe use some of the papers that were written for the May 2003 UNFCCC workshops on insurance here. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	We could not find relevant documents on the UNFCCC meetings' website (http://unfccc.int/meetings/workshops/other_meetings/items/1036.php) and have referred to more recent publications instead.
17-993	A	38	10	38	25	The traditional insurance mechanism as a potential solution to poverty alleviation or even as a solution for dealing with the impacts of disasters on the poor in the south, has it limits. This is because we must consider relative poverty levels. For some poor (probably in the developed countries) insurance maybe a viable mechanism but for those living below poverty lines (especially in the South), paying the insurance premium would be impossible at an individual level. Some innovative group insurance mechanisms, might be required. In this context it may be useful to refer to literature on development of micro-credit in developing	We have expanded discussion of the limits to insurance as an adaptation strategy, including mention of microcredit..

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						countries. (Upasna Sharma, Indian Institute of Technology, Bombay)	
17-994	A	38	14	38	14	Please replace “mitigation” with “disaster risk reduction”, in order to avoid confusion with mitigation of greenhouse gas emissions. (Laurens Bouwer, Institute for Environmental Studies, Vrije Universiteit)	Mitigation has been replaced in the text with disaster risk reduction or risk reduction to avoid confusion.
17-995	A	38	17	39	10	I think this section is trying to address my remark # 5. It could be a little more blunt. (John Macintosh Callaway, Forskningscentre RISØ)	Unsure which is remark #5.
17-996	A	38	18	38	18	“... For example, ...” what follows is not an example of the fact that “the lack of information [to] accurately judge risk”. The fact that insurance penetration is so low in developing countries has mainly to do with income differences. It is well know that there is clear and strong relationship between income and spending on insurance premiums. Nonetheless, there is ample opportunity to introduce financial services tools (and not just insurance!) in developing countries in order to deal with disaster risks and climate change impacts. See for more information Bouwer, L.M., Aerts, J.C.J.H. (in press). Financing climate change adaptation. Disasters 30(1); Bouwer, L.M., Vellinga, P. (2005). Some rationales for risk sharing and financing adaptation. Water Science and Technology 51(5), 89-95. http://www.iwaponline.com/wst/05105/wst051050089.htm ; Hoff, H., Warner, K., Bouwer, L.M. (2005). The role of financial services in climate adaptation in developing countries. Vierteljahrshefte zur Wirtschaftsforschung 74(2), 196-207. (Laurens Bouwer, Institute for Environmental Studies, Vrije Universiteit)	We will look at these references.
17-997	A	38	22	38	22	Also, with the very poor, a more fundamental problem is lack of land rights and illegal settlements (Liza Leclerc, UNEP)	Not applicable in revised text.
17-998	A	38	25	38	25	Insurance penetration is not independent of the former factors that are mentioned, but quite the contrary. (Laurens Bouwer, Institute for Environmental Studies, Vrije Universiteit)	Point taken, but text not revised.
17-999	A	38	27	39	24	On 'Institutional barriers': At national to local/community level mainstreaming, one of the major berriers is having inconsistencies in policy regime. A few examples	Not applicable in revised text.

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						are cited in Ahmed (2004). (Ahsan Uddin AHMED, Bangladesh Unnayan Parishad (BUP))	
17-1000	A	38	31			Van Alast should be van Aalst (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Change made in the text
17-1001	A	38	33	38	39	Strating with sentence "In view of this..." - the way this sentence is written is inappropriate for this chapter. This is not the sort of information that belongs in this review of adaptation, in my opinion. Decision 5/CP.7 is a long, complicated and compromise-ridden document that came out of hours, weeks and months of negotiation but does not represent by any means the most appropriate way forward for removing institutional barriers to adaptation. Because of the legal and political nature of that document, I do not find it is useful to discuss in the context of this chapter. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Not applicable in revised text.
17-1002	A	38	44	38	45	The problem is not the location of climate change policymaking within government ministries, but its typical location within weak government ministries. For example, disaster management units are often found in Ministries of Home Affairs, whilst climate change is handled by Ministries of Environment. These two institutions are often too weak to influence economic planning and the actions of powerful Ministries such as Public Works and Agriculture. (Sofia Bettencourt, The World Bank)	Reference to "relatively weaker government ministries" has been added to the text.
17-1003	A	38	45	38	47	I am not sure this statement is fair: actors in the humanitarian system as diverse as IFRC, UNDP-ERD and Oxfam, devote considerable effort into understanding and acting on the linkages (John Morton, Natural Resources Institute, University of Greenwich)	Added to the text.
17-1004	A	38	45			"Natural disasters" - see comment No. 20 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Changed.
17-1005	A	38	49	38	49	Is this really the traditional role of NGOs, and even if it is, is the argument about its expansion relevant to this para? (John Morton, Natural Resources Institute, University of Greenwich)	Word traditional has been removed.
17-1006	A	38	49			define NGOs (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	

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17-1007	A	38	49	38	49	effects' should be 'affects' (Mark Tadross, University of Cape Town)	Editorial comment – change made.
17-1008	A	39	0	40		Subsection on technology - it is very weak, needs refs and a discussion of different scales and timeframes as well as examples (Jan Corfee-Morlot, University College London & OECD)	The section has been revised and shortened. Issues of scales and timeframes have been added.
17-1009	A	39	0			Subsection on social and cultural barriers: this is potentially important but misses some of the key points: i) progress in implementation of Art 6 on education and public awareness under the Convention - e.g. see latest compilation and synthesis of the NAI national communications in UNFCCC documentation for COP11. You need examples and these should be related to scale (Jan Corfee-Morlot, University College London & OECD)	This section has been revised.
17-1010	A	39	0	40		This section should not only be about technology transfer. In many cases it's about the effectiveness or the negative side effects of technologies that do exist; in other cases it's a matter of having technology where it is needed (and the cost and additionally required infrastructure involved in making it available). This section needs to be expanded and better balanced. (Susanne Moser, National Center for Atmospheric Research)	Comment taken into account in revised text.
17-1011	A	39	0	40		Technological barriers section assumes that all adaptation technologies will come from the developed to developing countries. This assumption is false. The developing countries have been adapting to global change more often and frequently than the developed countries communities. Development of indigenous knowledge resident in the south could yield very useful adaptation technologies and should be encouraged. (Shem Wandiga, University of Nairobi)	The section focuses on technological barriers and distributional issues, regardless of the origin of the technology.
17-1012	A	39	1	39	10	Zhao (2005) stated that the increase of input from the upper government does not necessarily result in more active efforts by the lower government in disaster alleviation. (Yong Zhao, China Huaneng Technical Economics Research Institute)	Reference not found.
17-1013	A	39	2			Wanser (ref) should read Wanser,1998. (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Changed to Wisner 2003 (see comment below)
17-	A	39	2			I believe the Wisner reference here is to the chapter in Pelling's edited book from	Reference included.

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1014						2003 chapter title: "Changes in Capitalism and Global Shifts in the Distribution of Hazard and Vulnerability", book title "Natural Disasters and Development in a Globalising World", Routledge: London. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	
17-1015	A	39	6	39	10	May want to confirm that they are still active (Liza Leclerc, UNEP)	May not remain in final text...
17-1016	A	39	10			And in many other places. It seems that Christoplos et al have said it all! Surely this reference is being overused. (Ian Noble, The World Bank)	Other references added.
17-1017	A	39	12		24	This is very loosely worded and may not be needed at all. It repeats earlier material and does it less well - stating issues in a controversial way. It may be worth reworking the idea from the 1st sentence only - that is the institutional thrust of the international regime has to date been on mitigation, but that is quickly changing (as I think the COP11 will show). (Jan Corfee-Morlot, University College London & OECD)	No longer applicable.
17-1018	A	39	12	39	24	Delete (Liza Leclerc, UNEP)	No longer applicable
17-1019	A	39	12	39	14	It cannot be said that existing interventions for adaptation are focussed on mitigation (John Morton, Natural Resources Institute, University of Greenwich)	No longer applicable
17-1020	A	39	12	39	14	Sentence "Additionally..." - some references following this sentence would be necessary, as the logic is unclear - I would like to be able to look at some evidence for this statement. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable
17-1021	A	39	14	39	16	Please provide a reference on the growing emissions in developing countries (Pauline Dube, University of Botswana)	No longer applicable
17-1022	A	39	14	39	16	"Emissions from developing countries.....few decades". Please cite the refernce for this statement. (Upasna Sharma, Indian Institute of Technology, Bombay)	No longer applicable
17-1023	A	39	14		16	Developed country as the USA is still the top emission country. (Shaohong WU, Institute of Geographical Sciences and Natural Resource Research,	No longer applicable

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						CAS)	
17-1024	A	39	16	39	18	Sentence beginning with "However, the developed -----, the most vulnerable" needs polishing. (Bernard Edward Gomez, Department of Water Resources)	No longer applicable
17-1025	A	39	16		19	another important point to bring out better in the executive summary (Susanne Moser, National Center for Atmospheric Research)	No longer applicable
17-1026	A	39	18	39	21	Examples will strengthen the messages put forward. (Pauline Dube, University of Botswana)	No longer applicable
17-1027	A	39	20			Sentence "The most vulnerable systems..." - this sentence is not only out of place here but also repetitive (this has already been addressed several times throughout this chapter). Nevertheless, it could come up front and replace another place where this issue is mentioned. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable
17-1028	A	39	26		47	This section seems rather unsatisfactory and too limited. First of all, it's not just about a mutual and unified understanding, but also about differences in valuation and priritization. People have very different preferences about adaptation measures, depending on how they align with social, cultural, economic and personal values and preferences. You should mention how this can lead to conflict or stalemate, often carried out in the courts, and maybe in some regions through violence. This is where the rubber meets the road, and you make this sounds as if it was not very tough territory. you make it sound way too "easy". You also don't say clearly that all these assumptions and beliefs (e.g., lines 30-31, 42) are completely untested by research, pointing to more research needs. (Susanne Moser, National Center for Atmospheric Research)	Taken into account in revisions.
17-1029	A	39	26	39	47	Here you might want to cite a recent paper by Grothmann and Patt, examining the role of social-psychological factors in influencing adaptation. In a study based primarily in the Elbe River valley of Germany, augmented by related work in rural Africa, the researchers found that psychological indicators (degree of trust, feelings of self-efficacy) were more successful predictors (compared to socio-economic indicators) of whether individuals had responded to warnings by taking self-protective adaptive actions. (Grothmann, Torsten and Anthony Patt (2005).	Taken into account in revised text.

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						Adaptive capacity and human cognition: the process of individual adaptation to climate change. Global Environmental Change 15(3): 199 – 213.) In another study, in Zimbabwe, researchers found that decision-makers were far more likely to trust information and make relevant adaptations when they perceived that the communicator had a stake in the outcome of their decision. (Patt, Anthony, Hannah Bowles, and David Cash (in review). Mechanisms for enhancing the credibility of an unknown advisor: purchased advice and aligned incentives. Second revisions to manuscript in review at Journal of Behavioral Decision Making.) These both indicate that it is important to examine the psychological and social factors that could be limiting people's willingness to trust and use the information on which adaptation is based. (Anthony Patt, Boston University)	
17-1030	A	39	27	39	30	source? Fact or opinion? (Liza Leclerc, UNEP)	No longer applicable
17-1031	A	39	33		40	the communication of climate change literature is large - some of this should be cited here. For example, on climate change see Boskoff & Boskoff, Ungar, Mazur, Mazur & Lee, Carvalho & Burgess, Weingart et al, etc. [I can provide refs if needed] See also Miller 2001 on framings (Jan Corfee-Morlot, University College London & OECD)	Need to look at these.
17-1032	A	39	36			after "this situation" cite: Moser, Susanne and Lisa Dilling. "Making Climate Hot: Communicating the Urgency and Challenge of Global Climate Change." Environment 46(10): 32-46. (Susanne Moser, National Center for Atmospheric Research)	Need to look at this.
17-1033	A	39	36			UNFCCC - same comment as No. 55 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Can't see comment 55.
17-1034	A	39	40			It's a bit scary that the only reference here is the one that you have.... This paragraph and the refernece are absolutely inadaute. Some references that suit can be found in the Moser/Dilling article, but beware that there are tremendous efforts going on in the UK, European Union, Canada, Australia - the lessons of which are not reflected here. (Susanne Moser, National Center for Atmospheric Research)	No longer applicable

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17-1035	A	39	40	39	40	At the end of this para you could not that a social and cultural barrier for those working with adaptation to climatic extreme events is the degree of fatalism felt not only by those at risk but also by policy makers. (Mark Pelling, King's College London)	Considering this in revisions.
17-1036	A	39	42		43	What's the basis for this statement? Substantiate - discuss different perspectives - or drop. (Jan Corfee-Morlot, University College London & OECD)	No longer applicable
17-1037	A	39	42		47	Generally this paragraph is unintelligible as it is - it needs to be more specific, explained with examples or dropped. Some of the above references on communication and media studies may be of some help. Last sentence - not at all clear what "such beliefs" refers to. Evidence from recent rounds of negotiations suggest that there is political blockage for further action on climate coming from the North and the South. Also academic research on global and regional environmental issues in the developing countries suggests that there can be significant capacity to understand and manage global environmental problems in a local context in tandem with emerging science (see recent work by Fairhead and Leach; EO Wilson on forests and biodiversity) (Jan Corfee-Morlot, University College London & OECD)	No longer applicable
17-1038	A	39	42	39	47	same as above (Liza Leclerc, UNEP)	Unclear
17-1039	A	39	46			Brooks 2003 should be 2003a, or 2003b (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Change made to text
17-1040	A	39	47	39	47	It would be useful in this paragraph to note the role of the media - the latest Red Cross World Disasters Report (2005) focuses on Information in Disasters and includes comment on the responsibilities of the media. The media are not mentioned in this chapter and this would be a good place to note their responsibilities. (Mark Pelling, King's College London)	Considering this in revision.
17-1041	A	39	48			Insert a new para at line 48 as follows: "Social and cultural barriers can also inhibit the use of adaptation technologies. Perhaps a good example of this was the apparent unwillingness of Greenland's Norse settlers to learn from and employ Inuit	Considering this in revision

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						technologies that were better adapted to the rigors of Greenland (Goklany 1995). Similarly, technologies like genetically modified crops to alleviate hunger or increase the productivity of agricultural land and water or DDT to combat malaria are more likely to find favor in some societies but likely to be shunned by others. Such social and cultural choices can have a major bearing on adaptive capacity and adaptation practices (Goklany 2000)." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	
17-1042	A	39	49			There is need to consider the availability of appropriate human resources to drive the technology (Pauline Dube, University of Botswana)	Point taken, but a reference is needed.
17-1043	A	39	49			transfer can also be south to north such as Philippines sophisticated early warning systems (Liza Leclerc, UNEP)	No longer applicable.
17-1044	A	40	0	41		Information - subsection adds very little; needs a rethink (Jan Corfee-Morlot, University College London & OECD)	Has been revised
17-1045	A	40	0	41		This section is inadequate. It's not just about the quality and rigor of science that proves as an informational barrier. It's also how that science is communicated to relevant stakeholders and how it gets integrated (or not!) in the policy- and decision-making process. Lost of literature on that. you also nowhere make the point that most people currently don't see the need for getting informed about adaptation, much less do anything about it (see e.g., p.41, line 3-5). (Susanne Moser, National Center for Atmospheric Research)	Has been revised
17-1046	A	40	1	40	6	Delete: Not well developed and does not add anything (Liza Leclerc, UNEP)	No longer applicable.
17-1047	A	40	2			Incorrect - it is not the Buenos Aires Action Plan but the Buenos Aires Plan of Action (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable.
17-1048	A	40	4	40	6	These sentences should be removed if no solid references. (Dr. Bundit Limmeechokchai, Sirindhorn International Institute of Technology, Thammasat Univ.)	No longer applicable.
17-	A	40	5			CDM (ref?) delete or complete	No longer applicable.

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1049						(Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	
17-1050	A	40	9	40	10	Replace "... The latest technology..." with "...appropriate technology..." (Indur Goklany, Office of Policy Analysis, Department of the Interior)	No longer applicable.
17-1051	A	40	10			"latest" - why the latest - surely it should be the most appropriate. (Ian Noble, The World Bank)	No longer applicable.
17-1052	A	40	11			"several instances" - cite them (Ian Noble, The World Bank)	No longer applicable.
17-1053	A	40	21			UNFCCC Same comment as No. 55 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable.
17-1054	A	40	21			Change sentence starting "The UNFCCCC COP10 welcomed..." Delete phrase "welcomed the progress made in the implementation of the BAPoA" - this sounds like UNFCCC legal language and is unimportant and inappropriate here (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable.
17-1055	A	40	34	40	35	Outdated. UNEP has received a number of TNAs for example. Note: In several sections related to CoP and UNFCCC, the word "noted" is used and appears anecdotal. Governments will probably pay close attention to attributing informal sentences to CoP decisions as this propogates mis-information to all the people who source the IPCC. (Liza Leclerc, UNEP)	No longer applicable.
17-1056	A	40	42	41	12	These two paras definitely need more concrete examples, and the second of them is repetitious of earlier material on the need to strengthen adaptation to existing climate variability (John Morton, Natural Resources Institute, University of Greenwich)	No longer applicable.
17-1057	A	40	43	40	50	One of the major informational barriers are standards for sector-specific adaptation: e.g. climate proofing building codes, roads, irrigation infrastructure, crop production, fisheries. This type of information and expertise is currently in high demand worldwide. (Sofia Bettencourt, The World Bank)	Taken account in revised text
17-1058	A	40	43			Do you want to mention at appropriate and meaningful scale for adaptation decisionmaking (e.g. national, subnational regimes)? (Jan Corfee-Morlot, University College London & OECD)	No longer applicable.

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17-1059	A	41	0	42		The chapter lacks a conclusion. (C. Gregory Knight, Pennsylvania State University)	Under consideration
17-1060	A	41	7		12	Why is this point made in a section on Informational barriers? Seems not to fit. (Susanne Moser, National Center for Atmospheric Research)	No longer applicable.
17-1061	A	41	7	41	10	Sentence "As such..." - why is it the responsibility of climate change STUDIES to ensure that countries are able to cope with hazards - what does this have to do with the study. Should this word actually say programme, measures, projects or interventions instead? (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable.
17-1062	A	41	10	41	12	"Reducing risk..." see comment no. 53 (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	No longer applicable.
17-1063	A	41	10	41	12	This is one of the few references to linkages with disaster risk management, which should be expanded in the chapter. Please include a reference to POVCC (AfDB et al. 2003), which as inter-agency document with high level sign-off emphasizes that the first step to adapt to climate change begins with addressing existing climate related vulnerabilities. Also referenced should be the discussion paper "Disaster Risk Management in a Changing Climate" (Sperling and Szekely, 2005), which as VARG document represents an implicit follow-up to POVCC and explores the linkages with disaster risk management in greater detail. Furthermore, disaster risk management publications such as UNDP's Living with Risk publication and others, which include a discussion on climate change or provide valuable tools for assessing baseline vulnerabilities (UNDP's DRI, or the World Bank's Disaster Hotspot Analysis) should be consider in their relevance for climate change adaptation. (Frank Sperling, The World Bank)	Under consideration
17-1064	A	41	25	41	49	Adaptation takes place in conjunction with other processes, such as economic globalisation, adaptation creates winners and losers, therefore adaptation in itself is a political process. In the building sector in Norway, for example, policy reform to make the building sector more responsible make larger companies benefit disproportionately while effectively squeezing out small actors. Such a centralisation may in itself constitute a threat to local knowledge in the sector and future adaptation to local manifestations of climate change (Eriksen, Øyen et al	Under consideration

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						2005). The way that multiple stressors shape adaptation need to be more comprehensively described in this section (which, as commented earlier, should appear earlier in the chapter). Multiple stressors are not mere constraints to adaptation, they shape adaptation. Local adaptation strategies utilise a number of options and economic sectors, and are not isolated to controlling natural resources that may be affected by climate change. Labour migration is an important adaptation strategy in many developing countries, for example. Economic globalisation and migration restrictions fundamentally affect adaptation options and the way that people adapt their livelihoods in the face of climate change. Treating multiple stressors as mere constraints to adaptation misses the vital ingredients in the dynamism of adaptation. (Siri Eriksen, University of Oslo)	
17-1065	A	41	25			Should Stressors be a separate section? (C. Gregory Knight, Pennsylvania State University)	Has been revised and incorporated under institutional and political limits.
17-1066	A	41	25	41	48	Can shorten and move to 17.3.3 as part of discussion on dynamics of adaptive capacity. (Liza Leclerc, UNEP)	Under consideration.
17-1067	A	41	27	41	27	In view of its importance, it is worth mentioning HIV/AIDS specifically (John Morton, Natural Resources Institute, University of Greenwich)	No longer applicable here.
17-1068	A	41	27			But that's exactly the point. Instead of noting it as a problem, we should tell the reader how to deal with multiple stressors. For example, the U.S. National Research Council, Our Common Journey, a transition toward sustainability (Washington, D.C., National Academy Press, 1999) has developed methodology on how to assess "complex problem clusters". This is the kind of how to information that the chapter should offer resource managers. (Jurgen Schmandt, Houston Advanced Research Center)	Not meant to be policy prescriptive.
17-1069	A	41	29	41	29	the sentence on economic and political circumstances could ref UNDP (2004) Reducing disaster risk: a challenge for development, UNDP-BCPR, Geneva and New York which goes into detail on this issue with case studies. (Mark Pelling, King's College London)	No longer applicable.
17-	A	41	30	41	31	Give examples of locations where such experiences occur	No longer applicable.

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1070						(Pauline Dube, University of Botswana)	
17-1071	A	41	30	41	30	Replace 'inextricable' with 'inextricably'. (Bernard Edward Gomez, Department of Water Resources)	No longer applicable.
17-1072	A	41	32			individually AND COLLECTIVELY (Susanne Moser, National Center for Atmospheric Research)	No longer applicable.
17-1073	A	41	33		35	What is the basis on which you make this normative claim that "equal weight should be given to..." - I would say that entirely depends on the context, doesn't it? (Susanne Moser, National Center for Atmospheric Research)	No longer applicable.
17-1074	A	41	41			Migration - you should note the relevance to human and animal populations as well as plants. Many connections in this discussion to earlier discussions on determinants of adaptive capacity and mainstreaming - might be some room for shortening through cross-referencing. (Jan Corfee-Morlot, University College London & OECD)	Included in physical/ecological limits section.
17-1075	A	41	41	41	43	At present, as the authors have yet to expand this, it is hard to see where the argument on migration, undoubtedly a significant future response to climate change, is going to go: will this be the place to discuss the political problems of international migration in response to climate change (John Morton, Natural Resources Institute, University of Greenwich)	Now in a box, related to institutional and political limits.
17-1076	A	41	43			Expand...? (C. Gregory Knight, Pennsylvania State University)	Has been removed.
17-1077	A	41	43			delete "Expand" (Ragab Ragab, Centre for Ecology & Hydrology, CEH-Wallingford)	Has been removed.
17-1078	A	41	43			The section on migration should bring up the fact that the reason for migrations may not always be climate change, and can sometimes be difficult to identify. Work has been done on the role of action-space in livelihoods to cope with seasonality, and other studies on migration that stem from human geography. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Elaborated on in box.
17-1079	A	41	47	41	48	Elaborate on policies that may discourage sound adaptation and give e.g. of such policies (Pauline Dube, University of Botswana)	No longer applicable.
17-	A	41	49			It would be useful, after reviewing so many specifics, to return to the big picture:	Considering a conclusion.

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1080						has adaptation made incremental or fundamental progress since TAR? What needs to change to improve the current practice? (Jurgen Schmandt, Houston Advanced Research Center)	
17-1081	A	41				I am missing a summarising conclusion here - as the chapter presents so much information, it would be a useful exercise to see if you could put together a good conclusion. Right now my guess is that this would represent a struggle as there are several conflicting statements in the chapter. In addition, as it stands, I do not find the Executive Summary an adequate reflection of the chapter but I realise that it is likely to change substantially anyway. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Considering a conclusion, and revising the executive summary to reflect the chapter.
17-1082	A	42	0	51	16	REFERENCES: The list includes 231 items. This will translate into 9 references per page if the text is reduced to 25 pages. The authors should attempt to reduce the literature cited to about 125. The authors seem to go about their assignment as if its focus is literature review for its own sake. A long list of cites serve no other purpose than to show the readers that the authors made a comprehensive study of relevant literature. That is ok if the exercise resulted in a reference work that adequately satisfies the adaptation needs of operatives and livelihood groups in the various sectors exposed to the vagaries of contemporary and future climates. On page 21 the information conveyed by the authors in paragraph 3 is no more than that Yin (2001) used a multi criteria method. What do we expect an agricultural livelihood group to derive or gain from this? The other references in the section made similar statements about the use of MCA. As suggested, one cite (World Bank 2000) with the table and an expanded narrative would have been much more useful. We ought to keep on reminding ourselves that our assignment is quite different from a PhD thesis in which the author is required by regulation to devote a section to literature review and he or she is rewarded according to the comprehensiveness of the literature cited. (James Adejuwon, Obafeme Awolowo University)	The chapter must reflect the literature and assess what it says about adaptation to climate change. Reducing the list of references is only appropriate if the statements that need support are reduced.
17-1083	A	42	0			This Chapter needs a dedicated future research priorities section to conclude. (Susanne Moser, National Center for Atmospheric Research)	Not considered an appropriate ending for the chapter.
17-1084	A	42	0			Additional Reference: UNDP (2004). Reducing Disaster Risk: A Challenge for Development. UNDP, New York	Point considered.

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						(Frank Sperling, The World Bank)	
17-1085	A	42	0			Additional Reference: W. Vergara, 2005. Adapting to Climate Change. Lesson's Learned, Work in Progress, and Proposed Next Steps for the World Bank in Latin America. Latin America and Caribbean Region Sustainable Development Working Paper 25. The World Bank. Washington, D.C. (Frank Sperling, The World Bank)	References considered.
17-1086	A	42	0			Additional Reference: Maxx Dilley, Robert S. Chen, Uwe Deichmann, Arthur L. Lerner-Lam, and Margaret Arnold (2005). Natural Disaster Hotspots: A Global Risk Analysis. The World Bank. Washington, D.C. 2007 (Frank Sperling, The World Bank)	Will consider
17-1087	A	42	0			Additional Reference: F. Sperling and F. Szekely (2005). Disaster Risk Management in a Changing Climate. Discussion Paper prepared for the World Conference on Disaster Reduction on behalf of the Vulnerability and Adaptation Resource Group (VARG). Reprint with Addendum on Conference Outcomes. Washington, D.C. (Frank Sperling, The World Bank)	Will consider
17-1088	A	42	1			References section: Care is needed to make sure the references to the UNFCCC documents are correct. Look at Yamin and Depledge (2004) to have a look at how they cite UNFCCC documents. (Emma Lisa Freja (Lisa) Schipper, International Water Management Institute)	Will consider
17-1089	A	42	22	42	23	Referencing: WB is not an official acronym for the World Bank, which should be spelled out. POVCC is an inter-agency effort which was led by the World Bank (it is not specifically a UNEP publication). (Frank Sperling, The World Bank)	Changes made in the text.
17-1090	A	50	49			"Yin, Y. 2001. Designing an Integrated Approach for Evaluating Adaptation Options to Reduce Climate Change Vulnerability in the Georgia Basin. Final Report Submitted to Adaptation Liaison Office, Climate Change Action Fund, Ottawa, Canada." (Yongyuan YIN, Adaptation and Impacts Research Group/Institute of Resources, Environment and Sustainability)	Will consider
17-	A	51	0			Zhao, Y., 2002: Economics of Flood Hazard Mitigation (PhD thesis). Tsinghua	Will consider

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Chapter- Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
1091						University, Beijing, China. Zhao, Y., Sun, Y., and Wu, Z., 2005: Stackelberg Problem in Flood Hazard Mitigation, System Engineering Theory and Practice, v 25, n 2, February, 2005, p 67-73 (Yong Zhao, China Huaneng Technical Economics Research Institute)	