



**IPCC WGII
Fourth Assessment Report
Climate Change Impacts, Adaptation and Vulnerability
*Government and Expert Review of Second Order Draft***

Specific Comments

GOVERNMENT REVIEW COMMENTS

Chapter 9

Please note that we have tried to include all comments where relevant. Responses were as of August, 2006, following the Cape Town deliberations. Since this time, several additional edits have been made and other changes included. Where possible we have tried to include these but some initial responses and comments may now have fallen away subject to final changes.

August 2006

Discussion of Government 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 AUGUST

Substantive comments

- The chapter writing team should discuss all substantive Govt review comments, by email and/or at Cape Town.
- 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 should be kept in this document, ideally electronically.
- 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 **8th December 2006**.

IPCC WGII AR4 SOD *GOVERNMENT* Review Comments

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-9-1	A	0				The draft addressed most of the impacts of the climate change. In some cases the models gave general impacts in a big geographical area in such a way that wet conditions are expected in the entire region. Therefore local variations and dry impacts which are currently observed in semi arid regions could not be predicted in the models yet they are very significant and have negatively affected the communities especially pastoral communities. It might be necessary to consider running regional models which might detect such local impacts. (Government of Uganda)	This is a research gap and we are going to emphasize more on research for down scaling as future research req. Recommendation we could make at end – but modes currently limited by downscaling etc. Identified as a research gap to be emphasizing (+downscaling and RCM)
G-9-2	A	0				The chapter gives a good overview. The concern is that although in the abstract the authors acknowledge that "climate change and variability, as an additional, but critical stressor is examined" this does not come back strongly in the rest of the chapter or the discussion. In particular, we cannot look at climate change in Africa without taking into account the change in population densities - human populations are increasing at rates around 3% in most countries - this means a doubling time of only 23 years (even with the impact of HIV/AIDS). Of course there is also the shift to urban centres, but population in the rural areas is generally more of a problem of changes in population and poverty on top of which climate change exerts impacts, not the other way round. We strongly encourage the authors to emphasize this point as the increases in population density will increase the pressure on natural resources enormously, and climate change can make adaptation increasingly problematic given this pressure. (Government of Netherlands)	We have discussed that we need to make a link to population pressure on various resources. Have been trying to get follow up on this WG 1 – will need to check again. Different to what Eriksen said – see reviewers comments. Was discussed – links to population pressure, impact (Pius to address in rewrites). Check on ‘direction of population pressure.’ We addressed population growth. Need to address the link with pressures on various resources.
G-9-3	A	0				The approach taken in the chapter in which multiple stresses and vulnerability are emphasized, is a good one. However, the chapter seems quite unfinished still: there are several sentences with words missing, lots of typing errors etc. Section 9.2.1. is not very balanced: Agricultural and Water sector sensitivity vs. health sector. In section 9.2.2. there seem to be some relevant other stressors missing: population pressure and land use change. The chapter would benefit from summary tables and figures indicating risks, hotspots for different regions of the continent, vulnerabilities. Summary regional information for different parts of Africa would be useful: now the reader has to look for for example impacts and vulnerability information for a particular region from several places. Also synergies and impacts exacerbating each other are difficult to find for one region. (Government of Finland)	Editing required agreed . Andrew to condense health section, however include HIV and malaria. Agreed. Summary of hot spots and impacts has been attempted and see figure 9.5 and table 9.2 whoever the point about land use and population pressure, we shall try and find information from other sources. (Pius) We shall find info from MEA. See the fig 9.5 and table 9.2
G-9-4	A	0				It should be more clearly noted that the treatment of climate change in this Chapter is different from the other regional chapters, in that climate change is seen as only	Thank you. Agreed and to emphasize in Executive summary – Africa’s vulnerability to

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						one of a number of current stressors to Africa. This is important as it provides a critical context for the comparison of climate change impacts between regions. (Government of Australia)	range of stresses including climate stress. Agreed overall aim
G-9-5	A	0				Confidence levels are not estimated/given (Government of Finland)	This will be addressed where possible in the executive summary. Difficult to discuss with group.
G-9-6	A	3	1	6	10	The Executive Summary for this Chapter departs with the standard practice of including confidence ratings for the findings of the Chapter. If it is not possible for the authors to provide such analysis, this should be explained. (Government of Australia)	See above. To discuss and include where possible!
G-9-7	A	3	14	5		Add a para on livestock: the subsequent droughts lead to loss of livelihood for especially the pastoralist people. IIRR, Acacia, Cordaid. Drought cycle management. A toolkit for the drylands of the greater horn, 2004 (Government of Netherlands)	Agreed – to check and include. Report – Check the document and include (all)
G-9-8	A	3	20		20	Inadequate financial capacity and slow pace of technological development among many other stressors” should be added to explain some of the causes of low adaptive capacity. (Government of USA)	Will try to address if literature available however we need to avoid being policy prescriptive.
G-9-9	A	3	34	3	34	some parts of East Africa will be wetter and not the whole region without local variations (Government of Uganda)	Refer to National Communication country reports. (Isabelle to check). Regional and local variations will be addressed. UNFCC Country Reports and National Communications. Refer to it generally in chapters – re to the Uganda INC (Isabelle)
G-9-10	A	3	42	3	34	and snow caps on Mt.Rwenzori have shrank (Government of Uganda)	Agreed: Pius and Andrew to check. References needed! Hulme. Controversial see other reviewer!
G-9-11	A	3	47	3	48	This sentence should be redrafted as it is unclear whether the authors believe climate change itself is disputed, or the health effects of climate change are disputed. (Government of Australia)	To check. Sentence will be revised....
G-9-12	A	3	47		74	It is important to define the time scales for the malaria epidemic figures, e.g. per annum, per decade etc. (Government of USA)	Good point. Per annum. Andrew to change. The number is per year.
G-9-13	A	4	14	4	15	Suggest redrafting sentence to alter the focus of the sentence to the wide range, (and important contribution) that agriculture makes to the GDP of African countries, rather than the flattened, less informative, average contribution.	The word range has been used in the literature to indicate the wide variation. Check the literature. African Environmental Outlook.

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						(Government of Australia)	
G-9-14	A	4	35	4	35	some parts of East Africa will will experience increased rainfall as noted above (Government of Uganda)	Addressed above. (G 9 – 9) Andrew to have a full paper.
G-9-15	A	5	5	5	5	High lands in East Africa were previously malaria free but incidences of malaria have been reported in the recent past. (Government of Uganda)	Andrew to have a full paper. References.
G-9-16	A	5	45	5		Add a para on conflicts resulting from scarcity of water, pasture, livestock (pastorist and agro-pastoralist people) IIRR, Acacia, Cordaid. Drought cycle management. A toolkit for the drylands of the greater horn, 2004 (Government of Netherlands)	Tabo and Pius to check literature. NB Need to track this document!!
G-9-17	A	5	51		51	Please explain what multiple interactions are referred to here (Government of Finland)	To edit line 17-22 (Coleen)
G-9-18	A	7	14	7	14	celsius missing should read 'approximately 50C (Government of Mauritius)	√
G-9-19	A	7	46	7	46	replace "these" with "the" (Government of Uganda)	√
G-9-20	A	7	49	7	49	Add "animal husbandary" (Government of Uganda)	√
G-9-21	A	8	26	8	27	replace"play role in" with "aggravate" (Government of Uganda)	√
G-9-22	A	9	1	9	1	replace"deforestation" with "land use change" (Government of Uganda)	√
G-9-23	A	10	4	10	6	It might be good to have some more explanation of how and where the food production would be reduced (and possibly why) (Government of Finland)	Will attempt to qualify and provide details (Tabo)
G-9-24	A	10	31	10	32	note that temperature rise has been recorded in southwestern highlands of Uganda (Government of Uganda)	Refer to AIACC REPORT: Andrew to check. Ask for sources.
G-9-25	A	10	41		41	Examples of the areas in Africa with this type bimodal rainfall should be defined in the line. For instance, the Equatorial Eastern African Region and the Gulf of Guinea Coast in Western African Region (Government of USA)	Will be addressed in the section on current climate. National Communication Reports. (Andrew) (Check with Neil). Will try to address in the section on current climate. (Isabelle)
G-9-26	A	10	44		44	The increased malaria transmission in the SON season may be due to reduced incubation period of the mosquito larval, resulting in greater mosquito population density in a given period and per location. This should be added to the end of the sentence in the line. (Government of USA)	Agreed Andrew to check. References to be looked for.

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G-9-27	A	10	46	10	46	replace "have" with "had" (Government of Uganda)	To edit
G-9-28	A	11	1	11	2	This link between malaria and HIV needs to be more prominent and included in the Executive Summary. (Government of Australia)	Andrew to check and provide references to CLA. Do we have enough to flag it upfront?
G-9-29	A	11	8	11	8	insert"air" between mean and temperature. (Government of Uganda)	Editing. Andrew to check in Steve Munga's paper
G-9-30	A	12	31	13	1	Table 9.1 is useful, however, it would be helpful if the countries included in the 'Developing Countries' were listed. (Government of Australia)	Coleen to check table 9.1 and clarify regional definitions. Add meanings (countries) of region. This table may be deleted.
G-9-31	A	12				Section 9.2.2: Population pressure and land use change are not included as other stresses (Government of Finland)	To be addressed see previous comments. NB need to track this see G. 9. 2
G-9-32	A	13	25		25	The word, arguable, should read "arguably" (Government of USA)	Editing
G-9-33	A	14	42	11	42	include foot and mouth disease (Government of Uganda)	Not applicable
G-9-34	A	14	43	14	43	insert"maintenance and and" between "of "and "extension" (Government of Uganda)	Editing
G-9-35	A	14	47	14	48	The sentence beginning "Most African countries..." is unnecessarily critical of internal government policies of African nations and should be deleted. (Government of Australia)	Disagree. Maintain sentence with qualifications by Coleen and Isabelle. Check with papers.
G-9-36	A	14	50	14	50	note that there is lack of improved tools of production and most people in the rural areas are still using hand and hoe as the only means of production. Mechanised farming is required in addition to improved seeds. (Government of Uganda)	Tabo to address
G-9-37	A	15	11		11	Should read the "proportion of" (Government of USA)	Edit
G-9-38	A	15	49	15	49	replace "role" with "impact" (Government of Uganda)	Edit
G-9-39	A	16	11	16	11	replace "priority" with "major" (Government of Uganda)	Edit
G-9-40	A	16	41	16	41	insert "natural" between complex and disasters (Government of Uganda)	Disagree. Point to be made clearer. See Hyogo Declaration and ISDR literature. Not all disasters only driven by natural hazards, often complex phenomenon – see detailed inputs from reviewers on this in expert

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							comments, that we have tried to include where relevant and space permitting.
G-9-41	A	16	44	16	44	insert "natural" between may and disasters (Government of Uganda)	No disagree – for reasons stated above.
G-9-42	A	17				Section 9.3. It would good if the projected climate changes (temperature, precipitation) would be presented also in a summary table. (Government of Finland)	Not agree. To be covered by WG 1 Isabelle to check the latest WG 1 Edition
G-9-43	A	19	1		4	It would be good to tell the time frame here, by what year? (Government of Finland)	Isabelle to check with WG1
G-9-44	A	19	10		16	Unclear paragraph. Does this mean that stabilisation at 550 ppm would reduce temperatures in the Sahel region by 2150? Stabilization at 750 ppm would delay what warming? (Government of Finland)	Again check WG 1 Isabelle and Tony to check with Nick Brooks to be asked to review the section on the case study in the Sahel.
G-9-45	A	19	13	19	13	insert""air" between "mean" and "temperature" (Government of Uganda)	Agreed to Edit
G-9-46	A	20	45	20	45	typing mistake on year. Please correct '21015' (Government of Mauritius)	Agree. Editing
G-9-47	A	21	34		37	Due to high population growth, people will also more and more live in places that are difficult also from adaptation to climate change point of view (e.g. low lying floods threatened areas, too densely populated areas, areas with poor sanitation and water and sewage services etc) (Government of Finland)	See above 9.2 Pius to address. So point is – need to add a phrase or two.
G-9-48	A	21	41			and poor location (settlements in problematic places from the point of view of impacts of climate change, such as low lying areas) (Government of Finland)	See above 9.2 Pius to address. NB – agreed – make point disasters link
G-9-49	A	22	10	22	10	repalce" in the absence of climate change" with"with the current state of the climate" (Government of Uganda)	Editing
G-9-50	A	22				Section 9.4: It would be good to have a summary table, figure or text that would combine these impacts and vulnerabilities. For example, water and agriculture are closely linked, but impacts to the sectors are treated separately. For example, in the Agriculture section (9.4.4.) only small losses in agriculture in N and S Africa are estimated expressed as fraction of GDP. However, in the Water section (9.4.1) water stress is projected for these regions. In fact, later in section (9.4.4) it is estimated, that 3/4 of suitable rain-fed agr. land is lost in the north! Use of fraction of GDP as an indicator for agriculture for these regions might not be very illustrative, or at least the indicator would need more explanation or opening up of	Figure 9.5 to be re-examined and where possible impacts and vulnerability addressed. Previously addressed in 9.13. Valid comment (Coleen). Literature currently written as such – not sure what we can do? Check expert editors, modify where we can. Tabo/Tony to reconcile

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						the term. (Government of Finland)	
G-9-51	A	25	42		43	The end of this sentence is unclear (Government of Finland)	Edit. Andrew to respond. Sentence needs to be rephrased.
G-9-52	A	25	49	25	50	note that there are already incidences of malaria outbreaks in East African Highlinds (Government of Uganda)	Edit. To be rephrased (Andrew)
G-9-53	A	26	26		26	There should be a period after transmission (Government of USA)	Editorial issues
G-9-54	A	26	28		28	There should be a period after the citation. (Government of USA)	Editorial issues
G-9-55	A	27	37		38	Is this correct? Northern and southern Africa are expected to suffer water stress (section 9.4.1.) It would be good to have a connection here to the Water section of this subchapter. (Government of Finland)	Same as 9 – 30. Tabo and Medany to check and also to check on GDP issues raised earlier.
G-9-56	A	27	45	27	47	The sentence starting with "Substantial lossess of potential agricultural land..." is unclear. The latter part of the sentence is missing? (Government of Finland)	Editing
G-9-57	A	27	47		47	The word and after estimates should be replaced with “an” (Government of USA)	Editing
G-9-58	A	28	45	10	30	Add more clearly attention for the pastoralist and agro-pastoralists way of life. For example: In the horn of Africa, the frequency of droughts has been increasing. In the past, droughts occurred in every 5 to 10 years. But now, major droughts occur every 3-5 years. This means that households are hardly left with sufficient time to recover from the previous droughts. This raises their vulnerability to food insecurity and poverty. Frequent droughts negatively impact on the pastoralists. Their livelihoods are severely threatened as the very basis of their food security systems, livestock, are dying in unprecedented numbers due to lack of water, browse and pasture. Surface water sources dry up creating a severe water stress for domestic use and livestock watering in the affected areas. In the pastoral areas pasture becomes very scarce. There is increased pressure at the boreholes. Conflicts over the scarce resources increasingly limit the coping mechanisms of pastoralists and increase their vulnerability to the vagaries of drought. (Government of Netherlands)	Previously addressed in 9.3, 9.7, 9.16 (Government review points) to be addressed by Pius. Idem G.9.7 – Pius References to be checked and looked for. NB – Focus on pastoralists should be stronger – Tabo to check . Pius // previously Subsequent to initial changes, we have now included sections on livestock (inputs form Nyong).
G-9-59	A	29				Figure 9.4. is a good one and illustrative of the projected impacts (Government of Finland)	Strongly agreed. Thank you.
G-9-60	A	33	39		41	The sentence starting with "It substantially increase..." is unclear.	Editing

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						(Government of Finland)	
G-9-61	A	33	39		41	Sentence starting with "In Cameroon..." increase is written twice at the end. The following sentence starting with "It substantially increase..." is unclear. (Government of Finland)	Editing. Isabelle
G-9-62	A	34	15			Is the range 5.8 to 542% correct? (Government of Finland)	It is correct (Isabelle to check)
G-9-63	A	34	35	35		add: Tourism also has negative impacts on the environment, e.g. their additional use of water and energy which is scarce in arid and semi-arid areas. The promotion of ecological tourism should be promoted. (Government of Netherlands)	Agreed good point, need to reference. (Isabelle to check literature CA)
G-9-64	A	36	2	36	3	table 9.2 in the 5th row and the 4th column add "East Africa" (Government of Uganda)	Agreed if valid. Check the INC (Isabelle / specially for East African countries. N. Comm East Africa)
G-9-65	A	36	2	36	3	Table 9.2 in second row and 4th column include "Uganda-Mt. Rwenzori" (Government of Uganda)	Need to check detail. Check the INC of Uganda. Pre-TAR but not referenced. (Andrew and Isabelle)
G-9-66	A	37	2	37	10	include Uganda in the third bullet. Also note that current impacts on Mt Rwenzori have not been included in the assessment. (Government of Uganda)	Kaser G (1999). A review of the modern fluctuations of tropical glaciers. <i>Global and Planetary Change</i> , 22: 93-103. ... to be added.
G-9-67	A	37				Figure 9.5: This is a very useful figure summarizing the hotspots/key vulnerabilities. Maybe it could be better to have different symbols for water stress/shortage and increased runoff. (Government of Finland)	Agreed to examine symbols and content of 9.5 CLA's.
G-9-68	A	38	26	38		add a para on the impact of climate change on the humanitarian situation: people will lose their livelihood, migrate and will become displaced or refugees or settle down in slum areas. These groups, but also those remaining in the areas (often most vulnerable groups such as women, elderly, children) will get more dependent on foodaid and other humanitarian aid. (Government of Netherlands)	References will be sorted to support these concerns and to be cross checked with the Sahel and food security case studies (Coleen)
G-9-69	A	38	26	38		add a para on conflict. For example: Conflicts over the scarce resources such as water and pasture for cattle increasingly limit the coping mechanisms of pastoralists and further increase their vulnerability to the vagaries of drought. It also leads to loss of lives (Government of Netherlands)	Agreed. See previous comments eg 9.16

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G-9-70	A	38	41			a word missing, political what? (Government of Finland)	Editing
G-9-71	A	38	42		44	This sentence is somewhat difficult to understand and it is not clear to me what is meant by "successful and sustainable adaptive capacity". Aren't effective governance systems, civil and political rights and literacy enhancing adaptive capacity by reducing vulnerability? Rather than linked to adaptive capacity aren't they factors in adaptive capacity itself? (Government of Finland)	Point beyond the scope of this chapter. Cross check with chapter on adaptation (Coleen) Debate with group – possibly clarify in glossary! (Coleen, Neil and Karen)
G-9-72	A	38	46		48	This sentence is unclear (Government of Finland)	Edit, agreed to reconstruct (Coleen and Balgis)
G-9-73	A	38				Section 9.5.1: Social and economic resilience are treated here. Should also ecosystem/ecological resilience be included here? (Government of Finland)	Agreed, good point. Pius to check and provide references.
G-9-74	A	39	1	40	1	Table 9.3: It is important to add the other institutions, such as the Drought Monitoring Centers in Eastern and Southern African Regions and the African center of Meteorological Applications for Development (ACMAD) in Western African Region. These institutions have provided community adaptation capacity building to climate risks such as droughts in their respective sub-regions. Under Technology, Bullet # 1. International framework for generating, communication and dissemination of seasonal precipitation forecasts, called Regional Climate Outlook Forum (RCOFs), needs to be mentioned. This is the process through which regional consensus precipitation forecasts have been developed by international modeling centers, such as the International Research Institute for Climate and Society (IRI), the UK Met Office and Meteo France etc. RCOFs have contributed to community adaptation to climate risks through e.g. linking seasonal precipitation forecasts, to decisions related to droughts, floods and malaria epidemics management. Other farming practices such as organic farming, Mixed and intercropping, agro-forestry etc. could enhance the resilience of the farming systems especially for drought management. Biotechnology as an adaptive measure will only benefit the poor African Farmers, if the associated inputs, such as inorganic fertilizers are accessible. Most of the improved seeds have high fertilizer requirements. Additionally, farmers will need viable and equitable market conditions to sell the surplus harvests from the high yielding varieties. (Government of USA)	Points taken; Coleen and Balgis to examine this table. Can all LAs look at the table O'Brien and Vogel book to add in! Socio – economic resilience. Good point – need to stress.
G-9-75	A	40	6		8	This paragraph/sentence would need more explanation. It is difficult to understand	Edit

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						how social networks and capital as such are adaptive strategies. (Government of Finland)	
G-9-76	A	41	12			Please explain the term survival emissions (Government of Finland)	Edit
G-9-77	A	41				Section 9.5.1.2, Equity: It would be good if "equity" was defined here for the purpose of this paragraph. Equity of whom: countries, regions, generations, groups of people, individuals...? (Government of Finland)	Agreed. To be addressed by Coleen and Balgis
G-9-78	A	42	39			A word is missing. The annual growth of what ? in Mozambique (Government of Finland)	Edit
G-9-79	A	43	34		34	The opportunity an early warning system with sufficient lead-time. E.g. the malaria epidemics prediction model can only be realized, if there is a robust institutional capacity to respond. If the resources to respond are not available, the population remains vulnerable, resulting in increased morbidity and mortality. (Government of USA)	Agreed , Good point stress more strongly. Andrew to address.
G-9-80	A	44	6		15	It would be good if concrete examples were given here. The message of erosion of adaptive capacity is not very strong, when the examples or evidence for it are "varying land use changes" and "socio-political and cultural stresses in some cases". Furthermore, "such losses" starting the second sentence is unclear, as the losses were not really described earlier. Please explain the term "agrarian drama" (Government of Finland)	Agreed: Coleen and Balgis to check
G-9-81	A	44	40		41	Beginning of the sentence seems to lack some words or the order of words is mixed up. Should the sentence be (after ..Africa,...)the focus needs to be on increasing adaptive capacity over the long term....? (Government of Finland)	Editing
G-9-82	A	44	42	44	42	Add the word " be" between could and considered. (Government of USA)	Editing
G-9-83	A	49	3		3	The word "where" should be replaced with "were" (Government of USA)	Editing
G-9-84	A	50	18		18	"Local or traditional" should be added to the word "community" to distinguish it from scientific community that provides contemporary knowledge system-western type. (Government of USA)	This issue is a serious one and needs to be further investigated The issue of indigenous knowledge will be addressed (Pius/Tony) See drought monitoring centre. ITED // Contact Pius. Case studies need to be shortened.
G-9-85	A	52	31			It might be good to explain in which cases climate change and variability may	Critical points will be given further attention

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						hamper development. It also seems quite mild to state that future climate change seems a marginal issue compared to the other stresses, but in "some cases...it may hamper development" . Some of the projected changes presented in this chapter are quite dramatic after all. (Government of Finland)	Important point. Needs further consideration. Yes how bold can we be – check with review editors.
G-9-86	A	52	32		33	I am not sure if it is useful to use a figure for the total costs for all developing countries for natural disasters in this context. It should be noted also, that the figure for damages is dependent on for example insurance costs - the actual damages for developing countries could in fact be much higher in lost property, livelihoods and human lives, but the figures for these could be non-existent. (Government of Finland)	Critical points will be given further attention. Good point need to work on including more disasters literature – ISDR?
G-9-87	A	53				Table 9.5: Potential impacts of climate change? Goal 1 - Impacts: Economic growth due to change in natural systems...Is this Decrease in economic growth? (Government of Finland)	To checked (Balgis)
G-9-88	A	54	9		11	The term GHG emissions here would need clarification - the "major emissions" are also GHG emissions but from a different source, if I understood the sentence correctly (Government of Finland)	Editing and
G-9-89	A	56	14		18	Understanding seasonal to inter-annual climate variability may contribute to our knowledge of the longer-term trends in the climate system. Therefore, in addition to the need to understand the impact of carbon dioxide enrichment, it is important to have an increased understanding of the impact of seasonal to inter-annual climate variability on the livelihood systems such as agriculture. Plethora of studies have concluded that forecasting seasonal precipitation months in advance, creates the opportunity for informed decisions in economic sectors such as health, water livestock etc. But improved understanding of climate variability and the application of the forecasts derived from the understanding is still a gap in knowledge. The gap is recognized in the following areas: a) communicating the forecast in the right language for decision makers to understand, 2) developing regional and national level crop models that would downscale the Global circulation Models to policy relevant decisions, 3) understanding the decision contexts of the diverse users of seasonal climate forecasts, the need to educate the stakeholders to have better perception of climate variability as a risk factor in determining their outcome objectives etc. (Government of USA)	Agreed and deliberated further. To be integrated into the document Agreed to spell out more – included where possible in conclusions.
G-9-90	A	56	28		35	There are institutions of excellence, such as the Drought Monitoring Centers in the Eastern and Southern Africa, the African Center of Meteorological Applications for	Yes. Agreed and deliberated further. Included where possible into conclusions.

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						Development (ACMAD), and Aghrymet Center in Niamey, Niger. What is needed is to improve the capacity infrastructure of these institutions e.g. increased trained technical staff, increased and improved computing power and improved partnership with international climate research and application centers such as the IRI. (Government of USA)	