

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
33206	14					Please provide data source.	Accepted. Data source for this figure is clarified and stated.
33207	14					Please provide data source.	Accepted. Data source for this figure is clarified and stated.
33203	14					Please provide reference or data source.	Accepted and implemented.
34438	14					A box highlighting key issues for LDCs as included in almost all other chapters should be added to the chapter.	Rejected. We have a treatment of LDCs throughout the chapter, including in several figures. So no need for a separate box on LDCs
20655	14					Cut by 30%.	Accepted and implemented.
33200	14					Please refer to the discussion on the role of technology in achieving sustainable development and equity in Chapter 4 and include a cross-reference to section 4.3.6.	Accepted. Cross reference to Chapter 4 added.
33201	14					In your discussion of the regional aspects of mitigative and adaptive capacity, capacity building and absorptive capacity, please refer to the underlying terms and concepts as introduced in Chapter 4 and provide a cross-reference to the relevant section section 4.6.	Taken into account. The following sentence is added at the end of the paragraph that starts in line 29 and finishes in line 41 of page 47: "The underlying concepts related to the relationship between mitigative and adaptive capacity are described in section 4.6 of this assessment". Due to the space constraints it was decided not to repeat or mention these concepts in section 14.3.2.3 and only refer to them.
20657	14					Cut by 30%.	Accepted and implemented
33205	14					The section on regional modeling results has not been well incorporated into the existing material and would possibly benefit from a repositioning to the end of section 14.2, providing a good linkage to the new next section 14.3 on "Regional cooperation and mitigation: opportunities and barriers".	Accepted and implemented.
25453	14					This section focuses on consumption and production patterns. The regional analyses on the macro sector are mainly described. However, there are few reviews for the sectoral analyses. The literature reviews should be made in a balanced manner. The literature on sectoral analyses exists such as Sinden, G. E. et al.(2011), "International flows of embodied CO2 with an application to aluminium and the EU ETS", Climate Policy, 11(5): 1226-1245, Homma, T. et al. (2012), "Quantitative evaluation of time-series GHG emissions by sector and region using consumption-based accounting", Energy policy 51, 816-827, and Nakano et al. (2009), "The Measurement of CO2 Embodiments in International Trade: Evidence from the Harmonised Input-Output and Bilateral Trade Database", OECD STI Working Paper 2009/3.	The comment is no longer relevant as we cut the sectoral analysis part. This issue is discussed more fully in chapter 5.
25454	14					This section mainly focuses on the consumption-based "CO2" emission. However, it should be mentioned that evaluations of consumption-based emissions depend on whether the emissions are CO2 emissions only or GHGs including CH4 and N2O mainly from agriculture. You will find literature on consumption-based GHG emission including CH4 and N2O such as Homma, T. et al. (2012), "Quantitative evaluation of time-series GHG emissions by sector and region using consumption-based accounting", Energy policy 51, 816-827.	Accepted. We clarify this point but also shortened the discussion and moved some of it to chapter 5.
31151	14					More detailed source references are needed in this section.	Accepted. The referencing in this section is improved.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
33198	14					The discussion currently lacks concrete indicators of how success in leapfrogging could be measured and fails to make clear statements about the related leapfrogging potential of different regions.	Taken into account. Section 14.3.1 provides concrete indicators about the leapfrogging potential of different regions. Section 14.2.7 further discusses regional potential for leapfrogging based on specific case studies as well as indicators presented in Figure 14.15.
33202	14					In your discussion of the regional aspects of mitigative and adaptive capacity, capacity building and absorptive capacity, please refer to the underlying terms and concepts as introduced in Chapter 4 and provide a cross-reference to the relevant section section 4.6.	Taken into account. The following sentence is added to the end of the paragraph that starts in line 29 and finishes in line 41 of page 47: "Section 4.6 addresses the large similarities and the complementarity existing between adaptative and mitigative capacities".Due to space constraints it was decided not to elaborate more the concepts reflected in that section, but to refer to them".
33204	14					The discussion of the CDM should concentrate on the regional focus to clearly differentiate it from the assessments in Chapters 13 and 16. As a consequence, section 14.2.8 should include an introductory overview highlighting which specifics of the CDM are discussed in which chapter and then provide precise links to the respective sections of the other chapters.	Accepted. Text revised accordingly.
20658	14					Cut by 30%.	Accepted and implemented.
33199	14					The assessment of the EU ETS does not follow the evaluation criteria agreed in Vigo, i.e. environmental effectiveness, economic effectiveness (cost-effectiveness and economic efficiency), distributional equity and broader social impacts, and institutional, political, and administrative feasibility and flexibility. The section should thus be rewritten according to this set of criteria.	Accepted. Section will be restructured.
30101	14					Again, I feel the recent advancement in the understanding of EU ETS impacts is not well represented in this section. Unfortunately there is no time to go into this, but these recent review may be useful. These recent review may be useful. Calel (2013) Carbon markets: a historical overview. Wiley Interdisciplinary Reviews: Climate Change, 4(2), 107–119. Available from: http://wires.wiley.com/WileyCDA/WiresArticle/wisId-WCC208.html .; Laing, T., Sato, M., Grubb, M., and Combet, C. Assessing the effectiveness of the EU Emissions Trading System. February 2013. Working Paper, Grantham Research Institute, London, UK. http://www2.lse.ac.uk/GranthamInstitute/publications/WorkingPapers/Papers/100-109/WP106-effectiveness-eu-emissions-trading-system.pdf ; Martin, R., Muûls, M., & Wagner, U. (2012). An Evidence Review of the EU Emissions Trading System, Focusing on Effectiveness of the System in Driving Industrial Abatement. Technical report, Department of Energy and Climate Change. Available from: https://www.decc.gov.uk/assets/decc/11/cutting-emissions/eu-ets/5725-an-evidence-review-of-the-eu-emissions-trading-sys.pdf .	Taken into account. Many of the references given are not peer reviewed or too general. All peer reviewed literature passing the IPCC cut off date has been used.
20659	14					Cut by 30%.	Accepted. Cuts have been implemented
20660	14					Cut by 30%.	Accepted. Cuts have been implemented

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
35317	14	0				Ten regions have been identified at the beginning of this chapter, but this grouping method is not consistently used in the following discussion. Different grouping methods are used and mixed up throughout the chapter, including regional group defined by economic status (e.g. LDC) (page 8 line 45) and even singling out individual countries in the discussion (page 15 line 9-12; page 20 table 14.2). The inconsistency of country grouping leads to disorganized structure and unconvincing conclusion in this chapter. In addition, the chapter focuses on regional mechanisms, and therefore should neither discuss national policies (which is the focus of chapter 15) nor international cooperation mechanisms (which is the focus of chapter 13).	Accepted. We acknowledge in the chapter that we cannot stick to our ten regions throughout as many regional initiatives (and the peer-reviewed literature) do not obey these particular regional boundaries
35318	14	0				The chapter lacks reasoning and consistency in the discussion of finance issue. The definition of public fund and private fund is unclear (page 35 line 15-17: CIF of the world bank cannot be counted as public finance since it is not under the convention and finance provide as loan not grant; page 35 line 35-37, in the original work in Buchner et al., 2011, public finance is defined as: "Public finance is raised through carbon market revenues, carbon taxes and general tax revenues", which is not the definition of public finance under the Convention). The discussion fails to address the current controversy on the definition of public fund, or reflect the assessment on the implementation of fast start finance (page 35 line 21: "10 billion \$" is quite controversial, there should be a note on that to reflect opinions on both sides.). CDM is an international mechanism, and should be discussed in chapter 13 instead. If the chapter indeed wants to discuss CDM, it should not only focus its discussion on the effectiveness of fund raising, but also on other aspects, namely how the CDM helps developed countries reduce the costs of compliance. Therefore, it is strongly suggested to reconstruct the assessment on finance issues in this chapter, presenting clearly the controversy on the definition of public fund and explaining the definition and scope when the amount of fast start finance is mentioned.	Accepted. Text on p. 35 is deleted. Text on CDM is retained, as it covers regional distribution issues not covered in any other chapter.
35319	14	0				Discussion on technology transfer is insufficient in this chapter. Thus, it is suggested to add a systematic and coherent discussion on technology transfer to chapter 14, focusing on regional cooperation on TT.	Taken into account. The reviewer has not clarified what specifically he/she believes is missing or referred to any specific literature. The chapter indeed already includes a lengthy discussion on regional technology cooperation in section 14.3.3 that the reviewer may have missed.
40948	14	0				Chapter (14) must provide more in depth review regarding spillover effects, burden sharing, and burden shifting are important dimensions at the regional level. This chapter provides largely unbalanced assessment. In particular: a- No mentioning of the phrases "spillover" or "response measures". b- Burden sharing is mentioned once (page 16, line 17) in relation to the rapidly growing Asian economies. c- Table 14.3, page 23 reports average energy subsidies by region in 2011 based on IEA(2012) that indicates subsidy rate of about \$800 per person in Middle East and North Africa (MENA). The methodology used by IEA (price gap) is known to be biased against energy rich countries.	Accepted. We have now a fuller discussion of this. However, most of these issues are really not 'regional' but relate to international issues and are thus mentioned in chapter 13. Regarding energy subsidies, the debate about how to calculate them is reflected in the final draft, including alternative sources.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
31143	14	0				Characterization of uncertainty around quantified estimates or calculations is lacking throughout chapter 14. It is important that the audience understands the uncertainty of the figures presented. Suggest that the statistical significance of results be evaluated. Specific examples in the Chapter include: page 25, line 17 (sources of uncertainty in emissions embodied in trade are discussed, but their net impact is not quantified or categorized); page 26 line 4-5 (is the trend in per capita emissions statistically significant compared to the uncertainty of the estimates?).	Accepted - Text revised. We have produced a section on MRIO uncertainties to tackle this issue.
34019	14	0				The treatment of the international cooperation option "Linking of domestic emissions trading schemes" is dispersed across Chapters 13, 14 (14.3.2.1), and 15 now, and requires integration. It seems obvious that the major treatment should be in Chapter 13, with Chapter 15 adding the national perspective and effects on this option. Even within chapters, integration can be improved: In Chapter 13, treatment of linking ETS is now dispersed across Sections 13.4.1.3, 13.6, 13.7.2, and 13.13.2.1 with the latter two offering the most comprehensive list of relevant references and offering the qualitatively best review of the topic which should be the point of reference of all other reviews of the overall WGIII report. In Chapter 15 the issue is treated in 15.5.3.6, and in 15.8.1 where the treatment is remarkably sloppy without references, not taking into account (in terms of quality of content, and referencing) the level of the available peer-reviewed literature. It is not obvious that this topic should be treated in Chapter 14. As a side note, the following publication attempts to offer a comparative analysis of different international emissions trading architectures and may be useful in structuring the assessment of linked schemes: Flachsland, C., R.Marschinski, O. Edenhofer (2009): Global Trading versus Linking. Architectures for international emissions trading. Energy Policy 37, 1637–1647.	Taken into account. The comment can be passed to Chapter 13 to resolve.
24935	14	0				This chapter could draw better links between biodiversity and regional development and cooperation. For example, climate change will potentially have higher biodiversity impacts in particular regions and therefore there needs to be capacity for improved cooperation between regions, i.e. in cross-regional ecosystem service markets, which could protect biodiversity and potentially mitigate climate change impacts. Biodiversity is largely invisible in this chapter, but it should be linked across many of the issues discussed.	Accepted. Biodiversity and its relation to regional cooperation is being included (Nepstad,D.C., W. Boyd, C. M. Stickler, T.Bezerra, and A. A. Azevedo (2013). Responding to climate change and the global land crisis: REDD+, market transformation and low-emissions rural development. Phil. Trans. R. Soc. B. 2013 368 1619 20120167; doi:10.1098/rstb.2012.0167 (published 22 April 2013) 1471-2970) and cross-references to Chapter 11, in WGIII.
33195	14	0				The chapter still does not manage to keep the regional focus throughout its analyses and redundancies with other chapters (such as Chapters 5, 6 and 7) are prevailing. The author team needs to rethink why using the REGION as unit of analysis is key and which new insights can be learned from taking this perspective. Also, when referring to other chapters for further discussions, references to the appropriate chapter SECTION and not only the chapter should be given.	Accepted. We expanded the sections where a regional focus is key and focus on those in the final draft.
33196	14	0				Please revert the chapter outline back to the version agreed by the 35th Plenary Session of the IPCC. In this version, the bullet points "Low carbon development at the regional level: opportunities and barriers" and "Regional cooperation and mitigation: opportunities and barriers" constitute two separate second level headings.	Accepted and implemented.
33197	14	0				The use of references in the chapter needs to be improved. In the current version, the level of referencing is not up to the IPCC's assessment standards yet.	Accepted. We have expanded references considerably.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22176	14	0				The overview of country policies is not an accurate representation of the state of play or of the literature. Country work on LEDS is not reflected, the number of countries with pledges has been misquoted. There are also problems with the methodology to identify whether a country has a climate policy which leads one to say that Colombia or the US has not policy which is not accurate.	Comment appears to be missassigned (not in Chapter 14).
22177	14	0				Many of the points made in this chapter are not specific to the regional level but rather the national level. Therefore, they may be repeating points made in other chapters and hence add little value. I would suggest that these are the sections that could be shortened or cut.	Accepted. We cut the sections that more appropriately should be discussed at the national level and refer to chapter 15 then.
22178	14	0				This Chapter discusses heterogeneity across regions. However it would be pertinent to give more acknowledgement to the significant differences that often exist within regions particularly with regards to income, standard of living and inequality within regions e.g South Africa as compared to Sierra Leone; Thailand as compared to Laos...	Accepted. We do this now in 14.1 where we also emphasize differences within regions.
41856	14	0				Overall, the chapter is overly focussed on macro-economics. This bias leads to inaccurate and/or incorrect statements. Reduce the bias, and "think outside the Western European macro-economic mindset".	Rejected. This comment is rather unspecific in what is meant by a macro-economic mindset. By the nature of our chapter, we have stay mostly at a high level of aggregation.
41857	14	0				Overall, too narrow in perspective. Chapter attacks the problem too-much from the viewpoint of large, developed nations with fossil-fuel based macroeconomics; where the economic objective function is "maximizing monetary gains for financial investors", and most environmental and security costs are greatly discounted. Need to give greater attention to the sustainable development paradigm, where the objective function is to "improve the quality of life for many poor citizens, while sustaining/enhancing the value of limited natural resources and over-burdened environmental/ecosystem services".	Rejected. A sustainable development paradigm is explicitly considered and we other aims and development needs, particularly of poorer countries
41858	14	0				Chapter sends "mixed message", and tends to discount the success and value of regional approaches while saying they are necessary. Needs to more clearly assess the following technical issues: --> Is trans-national regional collaboration necessary? Why or why not? --> What objectives should such collaborations focus on, in order to develop while reducing GHG's? --> What are opportunities and barriers for the different regions? --> What are some success stories and cautionary tales? Perhaps give one of each for each region? --> What are the lessons learned and choices for the path forward?	Accepted. We now have a clearer discussion on scope and limitations of regional cooperation.
41859	14	0				There is very little discussion of climate adaptation. Yet, adaptation is a key component to mitigation. In many cases, adaptation strategies will constrain choices for mitigation technologies (e.g., climate, water, and biofuels). Also, adaptation tends to enhance development, and can provide a basis for building the governance structures needed for successful mitigation. Perhaps consider this as a possible Path Forward for regional cooperation or perhaps make informed references to teh WG2 report where appropriate.	Rejected. While this is an important issue, there is no specific 'regional' aspect to linking mitigation and adaptation. We do have a discussion on this where relevant.
41860	14	0				Overall, tighten up and shorten. It is too wordy. The authors could capture the essential points in much less space by, for example, using more tables - focusing more clearly on key messages and findings - particularly as they developed since AR4.	Accepted. Chapter was cut by over 30%

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41861	14	0				<p>This comment came to mind many times, while reading. The chapter would be improved if the authors more clearly addressed the following issues:</p> <p>-->Why are some regional networks successful and others not?</p> <p>-->What would the criteria for success be, at different developmental stages for regional collaboration, for the purposes of GHG mitigation?</p> <p>-->How can developing nations repeat the successes in other places, while avoiding pitfalls?</p>	Accepted and discussed where appropriate.
41862	14	0				<p>The purpose of this chapter is to explore how regions can collaborate to pursue mitigation options. One of the barriers is policies, economic drivers, and infrastructure that pushes "fossil-powered" development. These policies also provide opportunities to mitigate emissions in the absence of a EU-ETS style trading scheme - or even the absence of capacity to develop such a scheme within a given region or shared-interest group. There is literature on this, which the authors have not discussed. For example:</p> <p>--> US DOE analyses of the implied price of carbon from U.S. energy subsidies, and similar work done in Australia</p> <p>--> G20 work on subsidy reform</p> <p>--> Experience at the city/local level (e.g. ICLEI, Clinton Global Initiative)</p> <p>Discuss the available literature regarding how regions can or could collaborate to develop ways to work together to favor low-carbon development with "energy push" subsidies. These range from energy-production payments, to tax policies, to renewable energy and energy efficiency mandates. One point of discussion in "lessons learned" should be how regions work together to improve the overall effectiveness of energy subsidies in GHG mitigation.</p>	Rejected. Most of these examples are not regional initiatives, they are either basically global (as in G20) or national.
41863	14	0				<p>One of the underlying drivers of increased GHG emissions is population growth - especially in the developing world. One could argue that we cannot effectively mitigate the climate problem without first mitigating the impacts of population growth. Consider linking with section 4 when they discuss population growth.</p> <p>The chapter should openly and honestly address this issue, and evaluate ways how regional collaborations can help alleviate this. What does the literature indicate in this regard? For example, there is a strong documented trend whereby nations that educate their citizens to a 6th - 9th grade level naturally achieve stable population with higher levels of human development. How can regional collaboration help facilitate this end by enhancing educational opportunities for both men and women?</p>	Taken into account. Text revised when commenting figure 14.1.b.
41864	14	0				<p>The points made in Figure 14.11, and the adjoining section (14.2.5.2) are very important points. Bring them out more and make these trends one of the main organizing features for the Chapter. Embodied emissions transfers are a key barrier, opportunity, and factor to be addressed through regional collaboration.</p> <p>Discuss how the literature addresses the question of whether/how-much harder it will be to mitigate climate change if developed nations continue to "offshore" their emissions to nations with lower labor costs and weaker governance.</p>	Accepted. An uncertainties description part is provided in 14.5.1.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41865	14	0				Overall, do a better job of linking adaptation and mitigation. They are inter-linked, one cannot be achieved without the other, and adaptation collaborations can generate momentum and governance to address the mitigation challenges. Evaluate this in the context of regional collaborations.	This is a general comment to section 14 and it is needed to be addressed by the group of authors of the whole section. In the particular case of section 14.3.2.3 the introductory paragraphs address the linkages between adaptation and mitigation in general, and in the particular case of the forestry sector. In this sector, as mentioned by the commentator, one cannot be achieved without the other. In addition, the example of box 14.1 on the Congo Basin collaboration, pointing out to specific problems related to the integration of mitigation with adaptation needed to be solved.
41866	14	0				Overall, the authors seem to have an overly-narrow perspective of what defines a region - and approach it from the context of a specific geographic area. However, there are many different kinds of regions. For example, security regions and trade regions include areas from different geographic points that share similar security and economic concerns. Think more carefully about what defines a region, its inter-regional relationships, its extra-regional relationship. In the analysis and discussion, include the principle of fairness with respect to climate impacts and abatement costs.	Accepted. We now have a broad discussion of regions and particularly trade regions are explicitly considered
41867	14	0				Which is true, "regional cooperation could play an enhanced role" or "regional cooperations must play and enhanced role"? The chapter argues both cases, to its detriment. The authors should focus on (1) the point that regional cooperation must play an enhanced role, and (2) lessons learned on how they can do that.	Taken into account. The word "must" is policy prescriptive. Since the IPCC intends to be policy relevant and NOT policy prescriptive, we do not use "must" in this context.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41868	14	0				<p>In general the chapter "data rich and information poor". It is a catalog of the various types of regional cooperation out there but it does not present much in the way of an analysis of what is working, what is not working and why, the characteristics of successful cooperations and those of the failed efforts. The chapter would be more readable if the existing descriptions of various organizations were put in a table naming the coalition/cooperation/organization, its mission, the members, etc. rather than have this in the main body of the text. Then focus on the lessons learned from all this work, and implications for the way forward.</p> <p>As written, the chapter would give a savvy reader the impression that regional platforms are not effective tools of mitigation, do not have value added, and represent huge opportunity costs. Is this truly the impression the authors want to convey? Portraying a positive impression of the need and value of regional cooperations requires evidence that regional cooperations create conditions favorable to address mitigation or adaptation. Such evidence is not apparent in the chapter, and needs to be included. This is a major weakness.</p> <p>It may be that certain conditions need to be in place for regional cooperation to be effective. What are these conditions? It may be that regional cooperations do not, in and of themselves, have any direct bearing on mitigation/adaptation efforts but do help create an enabling environment for policy change. However, in the absence of any clear statement of purpose, documented results, and clearly defined role, arguments in favor of regional cooperation - solely because regions have different patterns of economic growth, consumption and drivers of GHG emissions are not convincing.</p> <p>It may be that this kind of information is not available in the peer reviewed literature. It may require special studies undertaken of key informants to determine some of the "softer", intangible benefits of cooperation. If so, then point out these gaps and show how the literature points to the need-for and value-of additional studies. For example, regional cooperations could be instrumental in advocacy to member governments and help create a vision of sustainable economic development. They may be helpful in setting priorities.</p> <p>It is also important to note somewhere that these entities (with a few notable exceptions) really do not have regulatory power (except the EU and possibly the U.S. cooperatives -- RGGI and California). Thus it is important to be clear in an implications section what regional cooperations can do and what they should not be expected to do. It is hard to compare the EU to anything else in the developing world.</p> <p>The chapter also has too much emphasis on governmental cooperation. Some of the more effective regional cooperations do not involve governments at all but rather private sector industry, farming associations, and trade associations. They have a clearer focus sometimes and can persuade their members to adopt innovative technologies such as no-till conservation farming techniques, water management, local food security management, and sustainable development that ultimately do contribute to mitigation, adaptation and sustainable development. The reason for their success is that they identify local solutions to local problems. Something focusing on local innovation should be a part of this chapter.</p>	<p>Issue is the lack of peer reviewed literature - we should emphasize that this is the case and that therefore we are not able to evaluate regional agreements YET.</p>
41869	14	0				<p>When discussing regional initiatives, it is imperative that their success be gauged. How do they compare in effectiveness in terms of:</p> <ul style="list-style-type: none"> --> Meeting their specific objectives --> Facilitating the overall global objective of reducing GHG emissions? <p>For example, in Section 14.3.2, how important has the Asia-Pacific Partnership been in reducing China and India's emissions below BAU projections? In comparison, how much below BAU has the EU trading scheme achieved? How do these differences compare when "off-shored emissions" are taken into account?</p>	<p>Taken into account. There are no estimates of emissions impacts of APP. There are only few estimates of reduction from BAU through EU ETS and their robustness is contested. Section will be revised.</p>

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41870	14	0				Focus more on lessons learned, with an equal balance of lessons from success stories and cautionary tales. What the regions have done is less important than what we can learn from their actions.	In the particular case of section 14.3.2.3 the box 14.1 addresses lessons learned related to the relation of mitigation with adaptation in the example of the Congo Basin forest activities, pointing out to related problems needed to be solved.
41871	14	0				With respect to the discussions of hydropower throughout the chapter, the authors should discuss that there are other options besides large centralized projects involving big dams. Small-scale, distributed hydro-power from via in-stream technologies and existing diversion dams has a lot of energy potential, and fewer barriers.	Agreed and mentioned.
41872	14	0				What measurable things have the various cooperatives achieved? What have they not achieved? What have they done well? Where have they done "less well"?	This is a general comment to section 14 and it is needed to be addressed by the group of authors of the whole section. In the particular case of section 14.3.2.3, it does not address the results of the cooperative efforts and their assessment, but aspects related to the relation adaptation with mitigation in the examples presented.
41873	14	0				Cut length with tables, bullets. There is too much information written out that could be better communicated graphically. --> What is the objective, what are key takeaways, points that should be communicated and value added --> Lay these all out clearly from the beginning of the chapter. Highlight action platforms endorsed by notable groups. --> Highlight detailed notable successes, explain key drivers of success, also include small private sector regional cooperation. --> Define and delineate the roles and responsibilities of key actors and successful applied processes for coordination and decision-making. No progress without x,y,z. The paper could be stronger with examples of lessons learned from failures clearly highlighted. More analysis should be included on what is expected in the future, describe social side of regional cooperation. The report is very academic and could be more impactful as a real assessment of the current situation on the ground to serve as a platform for learning and identifying best practices and emerging trends within the 3 groups described at the end on pg 55	Accepter. Chapter was cut and refocused to emphasize key messages.
28093	14	0				General comments: 1. The regions analyzed in 14.2. are not the regions analyzed in 14.3. 2. Given that in 14.1. the importance of regions is emphasized, 14.2. just uses country-data and adds them up. This does not fully exploit the added value or looking at "regions".	Taken into account. Section 14.2.3.1 (Energy Access) has used other classification of regional grouping as there is no data available except highlighting energy accessibility. Section 14.2.4 (Urbanization) and 14.2.5.2 (household consumption) use data available at regional level.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
33932	14	0				A section focusing on the "Regional Cooperation on adaptation" should be added.	Rejected. The task of the regional chapter is to concentrate on mitigation. The interesting question is to what extent regional initiatives can contribute to global objectives. As regards adaptation, regional initiatives address regional objectives. Nevertheless, adaptation is touched upon on several occasions in this chapter.
33893	14	0				This chapter seems short of further discussions over those possible barriers impeding the regional cooperation due to some geopolitical reasons. At the level of enterprises, some business-motivated collaborations would have been well started up between two countries, if not for the obstructions from unjustified political concerns. Such examples abound, particularly in Asian regions where diverse interests and wide disparities have long existed in sharp contrast with the WEU. So it seems still useful, at least to point out this important aspect and propose any good ideas that may help overcome those unreasonable obstacles.	Rejected. It is beyond the scope of the chapter to discuss the barriers of regional cooperation in general (beyond mitigation).
41888	14	10	3			Figure is difficult to read and interpret. Perhaps adjust scales to make differences more apparent?	Noted.
25520	14	10				Under the main section Sustainable Development and Mitigation Capacity at the Regional Level, the sub-section "The ability to absorb new technologies" (14.1.3.1) and "Other regional advantages and challenges" (14.1.3.2) may be comprised furthermore.	Taken into account. Text revised and additional explanation added.
33914	14	10	3	10	4	Figure illustration states that "social provisions enabling regional capacities to embrace mitigation policies". One comment is that Lacking the reasoning of choice of current 6 factors and lacking the significant analysis on relevance of these factors and embrace mitigation policies regional capacities. If documentation on this issue already exists, please state and refer to. For instance, I can not see the correlation between unemployment and capacities to embrace mitigation policy. The second comment is that some of the factors are overlapping. For instance, human development index already contains the effects of mean years of adults schooling.	Taken into account. Text revised and additional explanation added.
40756	14	11	1	11	2	The fact "new technology exports are very low" does not always show low capacity to develop competitively market new technologies. Export-Import relationship is very complex, and defined by taking many indicators such as competitive advantage, absolute advantage into account.	Noted.
41889	14	11	8	12	4	Solar, wind, and hydropower is only costly for large, centralized power systems that provide power on-demand. Small, distributed hydropower and solar can be inexpensive in rural settings; and can be less costly than fossil-based systems for these settings.	Accepted. We emphasize that the costs mainly refer to centralized systems.
28101	14	12				Perhaps explaining along one region as an example would make it easier to understand the figure for those not familiar with this type of decomposition.	Accepted. Additional explanation will be added.
28099	14	12	18	12	19	I guess it should read "decrease of GHG emission intensity" instead of "increase".	Accepted. Text revised.
33898	14	12	18	12	19	the expression, "...but increase of GHG emission intensity per GDP contributed to lowering the growth rate of GHG emission...", is a bit confusing and unclear, one would wonder if it implies high GHG emission intensity per GDP also means high potential of possible emission reductions? Anyhow, this part needs to be rewritten.	Accepted. Text revised.
33897	14	12	21	12	21	the GDP given only in the form of PPP, without the comparison of the market-based exchange rate, may NOT be well accepted by some countries.	Rejected. The space for this chart is limited and PPP is the better metric to reflect development level.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28100	14	12	22	12	27	Another key with explanation for regional groupings would be helpful.	Editorial. Regional definitions are already explained in the previous section.
22185	14	12	7	13	13	This section needs to bring in the point about embedded emissions and the shared responsibility that regions such as WEU, NAM, POECD have for the emissions of regions such as EAS.	Taken into account. Covered in later sections.
40757	14	13	1	13	2	The data may be obsolete. IEA CO2 Emission from Fuel Combustion 2011 shows that only China accounts for 24% of world GHG emission.	Accepted. Data updated.
22186	14	14	4	14	4	Spell out "EMF" at first use for readers who are less familiar with acronyms.	Accepted.
22187	14	14	4	14	46	US EMF refers to the US and not NAM. How is this regionally relevant?	The section has been rewritten so that the comment no longer applies
41890	14	14	1	17	17	This section discusses the results of regional modeling for the U.S. However, the U.S. is not a region according to this chapter's structure. Please discuss these modeling results in the context of how they provide lessons learned for supra-national regions. Also, shorten and tighten (too long).	The section has been rewritten so that the comment no longer applies
41891	14	14	1	17	17	This section lacks a discussion of the three-way relationship between energy, development, and environmental/ecosystem services. Environmental/ecosystem services can be a key constraint to regional development in many parts of the world, and also place a constraint on low carbon energy development (e.g. biofuels, bioenergy, large-scale hydropower). There are also existing regional collaborations in place to deal with these types of issues. Energy development typically has negative impacts the value of environmental/ecosystem services across a range of geographic and temporal scales, and yet the cost of those impacts is not factored into the levelized cost of energy (LCOE) that is used in decision making. This is an ultimate driver of the climate and development problem, and a key part of the solution. This concept needs to be incorporated into the chapter, and become a significant point of discussion in how to use regional collaborations to help mitigate GHG emissions. Examples include deforestation and biofuels (e.g. Brazil, Indonesia) and conflicts in regional water resource management associated with energy development. Examples of regional energy-water conflict include: --> How building dams upstream in SE Asia threatens the value of downstream fisheries --> Potential impacts of lower-carbon shale gas development on water quality. The authors should discuss the literature on how these factors influence LCOE, and how regional cooperation can help to better incorporate these externalities into energy development (and land use) decision making - to help facilitate low carbon development. Include a discussion of the experience of regional cooperations in helping to factor the value of externalities associated with environmental/ecosystems services into energy and land-use decision making; and how that can help resolve the mitigation challenge. Authors should also pay attention to different types of regional cooperations, such as cooperations between cities with similar interests (e.g. ICLEI).	Taken into account. This point has been considered under the section on regional cooperation on hydropower.
24936	14	14	11	14	46	The US is not one of the ten regions identified at the start of the chapter. Suggest either 1) deleting the text on the US EMF 22 and US EMF 24 studies; or 2) justifying its inclusion at the start of the chapter	The section has been rewritten so that the comment no longer applies
33899	14	15	11	15	14	Here it does not seem to be quite appropriate to explicitly mention the name of two countries (China and India), without referring to other major emitters.	This section has been rewritten so that the comment no longer applies.
33915	14	15	9	15	12	The sentence "in the baseline, ... for china and india, respectively" is lacking supporting document. Or Should be changed as ""	The section has been rewritten so that the comment no longer applies
41892	14	16	35	16	35	It is debatable if CCS is really a viable option in the near term. Revise accordingly.	Accepted and no longer discussed.
41893	14	17	20	17	34	This section could be better stated graphically	The section has been rewritten so that the comment no longer applies
22188	14	17	34	17	34	What does "MAF" refer to?	Editorial. Corrected.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24937	14	17				The Pacific Appliance Labelling and Standards (PALS) Program could be introduced in this section as an example of a low cost policy option to increase energy efficiency and reduce diesel consumption in the Pacific. The Program can be summarised as: 'The Australian Government and the Secretariat of the Pacific Community (SPC) is delivering the Pacific Appliance Labelling and Standards (PALS) program in Pacific Island Countries where challenges exist in relation to energy security and their vulnerability to the effects of climate change. The PALS program is designed to implement labelling and standards for energy-using equipment such as fridges, air conditioners and lighting. The PALS program is aligning with the existing standards and labelling program being delivered in countries such as Australia and New Zealand. Pacific Island Countries (PICs) participating in the program will benefit both economically and socially. Economically, the projected demand for imported diesel fuel for electricity generation, and diesel maintenance and capital costs would be reduced. Socially, household income being spent on energy costs associated with running these appliances would be reduced'. Citation: Fifita, S. (2011). Pacific appliance labelling and standards programme: one step closer. Secretariat of the Pacific Community (SPC), Wednesday 7 December 2011, Suva, Fiji. (http://www.spc.int/en/component/content/article/216-about-spc-news/834-pacific-appliance-labelling-and-standards-programme-one-step-closer.html)	Accepted. Regional cooperation on standards and labelling has been considered under the section on regional cooperation on energy.
28102	14	18				Marking the start or the end-point will make it easier to determine the "direction" of the paths.	Accepted. Arrow will be used.
41894	14	18	1			Commentary does not belong in a figure caption. Please review and revise.	Accepted. Text revised.
41895	14	18	10			Difficult to understand this figure. Arrows could make it more comprehensible. Coordinate to standardize any changes with similar graphic in Transport Chapter.	Accepted. Arrow will be used.
20656	14	18	9	18	9	E.g. for China, Granger causality tests and co-integration analysis only showed an explanatory power of significant changes in per-capita income on energy consumption and emission pattern after Chinas economic reforms initiated in 1997/78 (Oberheitmann, 2006). Please cite as: Oberheitmann, A. and Frondel, M (2006). The Dark Side of China's Increasing Economic Prosperity: Will Energy Consumption and Global Emissions Rise Dramatically? In: Reinhard Bleischwitz and Oliver Budzinski (eds.): Environmental Eco-nomics – Institutions, Competition, Rationality. Berlin 2006: 207-224.	Rejected. Outside the scope of this chapter (regional issue only) - the comments should be reflected in the chapter on drivers (Chap 5).
25521	14	19				The data in the Table 14.1d should be updated with latest IEA data base " Global status of modern energy access". In the table 1 in the World Energy Outlook has shown the people without access to modern energy services by region in 2010. Please look at http://www.worldenergyoutlook.org/resources/energydevelopment/globalstatusofmodernenergyaccess/	Taken into account. Latest data source will be used and updated energy access data will be presented.
33901	14	19	16	19	16	it seems to be"compounded" rather than"compound", so the sentence should look like:"...This low access to electricity is compounded by the fact that..."	Taken into account. Compound will be corrected as 'compounded'.
33902	14	19	17	19	17	The word "results" should be "result"	Corrected
41896	14	19	3			Regarding (Table 14.1: Access to Electricity in 2009), the figures are a bit dated. IEA's World Energy Outlook 2012 has data for 2010, for instance.	Taken into account. Energy acces data will be used from 2012 World Bank.
41897	14	19	31	19	32	Use specific examples that demonstrate effective institutions, good business models, transport governance, etc. to improve this section and increase its impact. Use examples to illustrate main points, and generally improve on the way this section is structured.	Taken into account: Bazilian et al., 2012 and other literature reference will be inserted. This section will include relevant information with reference to increase its impact.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
35323	14	19	4	19	5	In the note, Hong Kong should be changed to "Hong Kong SAR"; and Macao should be changed to "Macao SAR"	Taken into account. Macao will be corrected as Macao SAR as per IPCC guideline.
33900	14	19	4	19	4	"Hong Kong" should be followed by "(SAR, China)", that is, Hong King(SAR, China)	Taken into account. Hong Kong will be followed as Hong Kong (SAR China) as per IPCC guideline.
22189	14	20	12	20	13	How above discussion applies equally to the national level as well as the regional one.	Agreed, but this is sometimes the case and unavoidable.
41899	14	20	17	20	36	The choice of future energy technologies also depends on how the costs are calculated. Do we only include capital, O&M, and fuel costs as part of LCOE? Or, do we also factor security costs and the cost of lost environmental services that result from energy development into that cost? This would yield different costs and different decisions. Address this.	Accepted and discussed where appropriate.
41900	14	20	23	20	28	Misleading if strong. Large-scale Hydro potential often lies far from population centers, and cost of transmission can be expensive. The authors need to include an informative discussion of policy enabling environment(s).	Noted: Discussion of regulatory environment and transmission issues in followign paras
22190	14	20	24	20	24	While SSA may be abundantly endowed with hydro, South Africa is not. How do you account for differences within regions on this matter?	Noted: text carries no implication that regions are homogenous
41901	14	20	29	20	36	Authors need to discuss the issue of access to climate funds	Rejected. This is an issue for chapter 16.
24191	14	20	7	22		Figure 14.2 highlighting China and India is not appropriate. China and India should not be presented seperately from developing asia.	Taken into account. However, to address more clarity in regard to electricity access in China and India (which is much different than rests developing Asia), it is proposed to include China and India as separate.
41898	14	20	10	21	44	This section is accurate so far as it goes, but seems to inherently assume that development must be accompanied by large, centralized power systems. However, the path in renewable is to move towards decentralization and more individualized production of energy. In this way, developing nations may have some inherent strengths that regional collaborations can build on. Include the decentralized development perspective into analyses in this chapter. For example, policy initiatives that focus on educating locals, building internal (bottom-up) capacity, and getting micro-loans to townships for small-scale development can facilitate capital flows while avoiding the inefficiency corruption associated with centralized governance in states with low governing capacity. To what extent can regional collaboratives facilitate this type of problem solving? How have they done so in the past?	Noted and is mentioned in the text.
33916	14	20	7	20	9	"number of people (...)lacking access to electricity in 2009(million)", "(million)"should be deleted here and insert to the first row of the table after "total population"	Taken into account. Table 14.2 will be deleted, hence no action is required.
22191	14	21	13	21	13	Are the demands that nuclear, coal and large hydro place on regulatory capacity any more than that of renewables? Surely it is just different?	Noted: remainder of paragraph expands on some of the differences
22192	14	21	16	21	18	Can this statement be qualified with evidence that finds that privately run electricity systems have faired better in regions? I would suggest that the question is not whether an electricity system is run by the state or the private sector, but whether it is run well. I would also suggest referencing the literature that details the failure of the World Bank-led reforms in privatising electricity systems in SSA (Gratwick and Eberhard 2005)	Accepted: ('State run' replaced with 'Large scale'); later work by Eberhard et al cited
22193	14	21	19	21	22	Introducing public/private generated power projects (renewable or fossil fuel) also requires high capital inputs.	Noted.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22194	14	21	37	21	33	It is one-sided to discuss subsidies in low and middle income countries, without considering public subsidies from which high income countries also benefit from. For instance multi-lateral development banks, bi-lateral donors and export credit agencies in financing fossil fuels that are consumed in high income countries. See for instance http://www.oecd.org/site/tadffss/48805150.pdf	Accepted: table ?? and discussion to be modified
28103	14	22	1	22	1	The numbers "0.00" for North America and Western Europe could be misleading: please label those regions with "n.a." (not available) or a "***".	Accepted. We now use a different source where there are more data points available, also for these regions.
28104	14	22	6	22	21	Does there exist more recent literature?	Taken into account. More recent literature added.
41902	14	22	4	24	36	The analysis here suggests that policies to (1) Reduce suburbanization, and (2) mitigate urbanization may be effective. To what extent is this true, and how could regional collaborations work together to advance such goals (e.g. by helping reduce the "rush to cities and suburbs")?	Noted.
20227	14	23		23		Add a footnote to the table stating that IEA(2012) uses what is called "price gap" methodology to calculate these subsidy rates.	Accepted and now discussed in the text.
22195	14	23	16	23	18	This statement should also acknowledge that car ownership is much higher in the US and that density of European cities is only one reason.	Taken into account.
28105	14	23	4	23	4	Illustration too small, signs cannot be read.	Noted.
32078	14	25	17		38	DELETE	Rejected. Section revised to flag the uncertainties in MRIO models.
30499	14	25				In the text, it seems that the consumption patterns by region is focused more than those by sector. The former is discussed also in Chapter 4 and 5. The literature review should be made in a balanced manner. The literature on consumption patterns by sector is such as Homma, T. et al. (2012), "Quantitative evaluation of time-series GHG emissions by sector and region using consumption-based accounting", Energy policy 51, 816-827, and Sinden, G. E. et al.(2011), "International flows of embodied CO2 with an application to aluminium and the EU ETS", Climate Policy, 11(5): 1226-1245.	We no longer discuss sectors here.
30500	14	25				It should be mentioned that evaluation of consumption-based emissions depends on whether the emissions are CO2 emissions only or GHGs including non-CO2. Such a difference will affect the evaluation especially in agricultural sector. In addition, the uncertainties of the consumption-based emissions should be mentioned. This is an important issue, and many studies pointed out these uncertainties.	Agreed and mentioned.
41903	14	25	5	26	29	The concepts in this section are subtle, complicated, and important to understanding the consumption angle to the GHG challenge. Unfortunately, this section is confusing and hard to follow. I suggest revision, considering the following: -->Break out MRIO and EEBT descriptions into bullet points that are easier to find and refer back to. -->Work harder to clearly describe the real implications of the different methods - and how they might impact the structure of how regional collaborations would work.	Accepted. The resolution of the chart is improved.
22196	14	26	25	26	26	This formulation is inaccurate: the literature referenced here is not a correlation / causality test, it has described the fact that growth in export-oriented industries in China has happened together with increasing emission levels as the industrial production and energy sector in China over the period was reliant on carbon-intensive production methods and inputs, and as externalities were not yet internalised in the policy framework. There is also important literature describing how the growth in China emissions over the period can be decomposed according to the growth in domestic consumption and growth in exports (see for instance analysis based on WIOD data).	Accepted. This section is rewritten and referenced.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
32079	14	26	7		12	DELETE	Rejected. This paragraph gives clear explanation to readers about the Fig. 14.9.
30108	14	26	6			This section presents in detail, the new results estimating the embodied emission transfers between regions for 2007. This exercise and the presentation of the results using sankey diagrams is not redundant, but a more useful exercise that is closer to the review objective of the IPCC report, would be to collate the embodied emission transfer estimates that have been already produced by the hundreds of existing studies. At the minimum, these new results should be presented in the context of existing studies' results, given that there is great variations across the studies in the estimated levels of embodied emission transfers. The increasing attention to issue of uncertainty in the literature must also be discussed in the same section where some numbers are presented. e.g. Lenzen, M., Wood, R., & Wiedmann, T. (2010b). Uncertainty analysis for multi-region input- output models – a case study of the UK's carbon footprint. Economic Systems Research, 22(1), 43–63. 8; Reinvang, R. & Peters, G. (2008). Norwegian consumption, Chinese pollution. Technical report, WWF Norway, WWF China Programme Office, Norwegian University of Science and Technology. Available from: http://assets.wwf.no/downloads/wwfrapport_jan2008_norsk_klimaavtrykk_i_kina_1.pdf . ; Wiedmann, T., Wilting, H. C., Lenzen, M., Lutter, & Palm, V. (2011). Quo vadis MRIO? methodological, data and institutional requirements for multi-region input-output analysis. Ecological Economics, 70(11), 1937–1945. and Sato, M. (forthcoming). Embodied carbon in trade: A survey of the empirical literature. Journal of Economic Surveys. Currently available as working paper Sato, M. April 2012. Embodied carbon in trade: a survey of the empirical literature. Working Paper, Grantham Research Institute, London, UK. http://www2.lse.ac.uk/GranthamInstitute/publications/WorkingPapers/Abstracts/70-79/embodied-carbon-in-trade.aspx	Accepted. There is now a section on uncertainty of these emission estimates which has now migrated to chapter 5.
41904	14	27	1			What is the source document for this Figure? Also, what are the source documents for all the figures?	Source now stated.
28106	14	27	1	27	1	The figure is a bit hard to read, especially in the bottom. Suggestion: One might add the regions to the right side of the figure for easier comprehension. Or use the same size as in figure 14.10., which is easier to read.	Accepted. The resolution of the chart is improved.
33904	14	27	10	27	10	After the word "emissions" and before the word "Analysis", there should be a period mark.	Editorial – copyedit to be completed prior to publication.
24192	14	27	5	27	9	The explanatory texts mention "the right-hand-side regions" at least two times, however in the Figure 14.9, "the right-hand-side regions" are not visible !	Accepted. The resolution of the chart is improved.
33903	14	27	5	27	9	The explanatory texts mention "the right-hand-side regions" at least two times, however in the Figure 14.9, "the right-hand-side regions" are not visible !	Accepted. The resolution of the chart is improved.
28107	14	28				Suggestion similar to figure 14.3: For those not familiar with EEBT it might help to explain one "spaghetti-bundle" as an example.	Accepted. Further clarification is provided together with the uncertainties in estimating emission flows among countries.
22197	14	28	21	29	2	Reference needed for this point.	Accepted. Data source reference are provided.
26266	14	3	13	3	14	14.2.2 Opportunities and Barriers for Low Carbon Development: Evidence from Regional Modeling Results could be shortened to 14.2.2 Opportunities and Barriers for Low Carbon Development	Accepted and implemented
26267	14	3	21	3	22	14.2.3.2 Opportunities and barriers at the regional level for low carbon development in the energy sector could be shortened to 2.3.2 Opportunities and barriers at the regional level	Noted: Energy needs to be the title somewhere.
26268	14	3	21	3	22	14.2.4.2 Opportunities and barriers at the regional level for low carbon development in urbanization could be shortened to 14.2.4.2 Low carbon development in urbanization	Taken into account. Text added.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
26269	14	3	26	3	27	14.2.5.3 Opportunities and barriers at the regional level for low carbon development in consumption patterns could be shortened to 14.2.5.3 Low carbon development in consumption patterns	Rejected. The current title can better reflect the whole structure of the chapter.
26270	14	3	32	3	33	14.2.8 Investment and Finance, Including the Role of Public and Private Sectors and Public Private Partnerships could be shortened to 14.2.8 Investment and Finance	Noted and implemented.
25455	14	30				Figure 14.12 is inconsistent with the referred source of O'Neill et al. (2010). For example, the energy expenditure share of Japan in Figure 14.12 is very high compared to that in O'Neill et al. (2010).	Accepted. Figure is revised. Text revised to clarify.
30501	14	30				Some of the shares in Figure 14.12 are not consistent with those in O'Neill et al. (2010) which is referred in Figure 14.12. For example, the expenditure share for food and others in Japan shown in O'Neill et al. (2010) is larger than that in Figure 14.12, respectively. Likewise, in O'Neill et al. (2010) the expenditure share for food in China is about 10% smaller than that in India, however, they are at the same level in Figure 14.12.	Taken into account. Corrected.
33906	14	30	11	30	11	In the sentence, it seems to use "pay" instead of "pays"	Editorial. Corrected.
33905	14	30	20	30	21	it's better to rewrite the sentence like this "...households in the less developed regions are very likely to westernize their lifestyles" or "households in the less developed regions are very likely westernizing their lifestyles"	Editorial. Corrected.
28108	14	30	28	30	29	Information that "others see potential threats to the functioning of the global trade system in their application" (as mention in ch. 15, p. 14, lines 27-28 - similar in ch. 15, p. 23 lines 13-14) should also be mentioned explicitly here to avoid a biased presentation.	Rejected. This issue is now discussed more fully in chapters 13 and 15 and we only briefly refer to it.
41906	14	31	1	31	23	<p>As discussed in Chapter 11, land use change contributes to about one third of global GHG emissions, and is in turn affected by climate change (Smith et al., 2007). There is considerable regional variation with agriculture sector emissions from Non-Annex I countries contributing 74% of the total agricultural emissions globally. By 2030, GHG emissions from the agriculture sector in these countries is expected to increase with the greatest rate expected in EAS (95%), followed by POECD (62%), MNA (50%), NAM (49%) and SAS (46%) (Smith et al., 2007). Population and economic growth by 2050, particularly in East Asia, South East Asia, and Sub Saharan Africa, will significantly increase the demand for food, necessitating agricultural intensification. Development trajectories, under business as usual conditions, will increase GHG emissions from these countries (Reilly et al., 2001; Parry et al., 2004; Lobell et al., 2008; Iglesias et al., 2011).</p> <p>This poses challenges in terms of those regions' vulnerability from climate change and the prospects of mitigation actions from agriculture and land use changes for low-carbon development.. Under a balanced mitigation A1B scenario, for the 2080s reduced land productivity is forecasted for Central America (-1), Northwest and Central Africa (-8), Middle East (-8), and particularly for South-East Asia (-18); whereas Australia (+1), North (+2) and South America (+1), and particularly Northern Europe (+15) would show the largest increase in productivity. Under a more intense mitigation scenario E1 the above-mentioned trend gets exacerbated particularly for the African continent and South-East Asia (Iglesias et al., 2011).</p> <p>Discuss how region-specific strategies are needed to (1) allow for flexibility in the face of impacts, and (2) synergize with development policies that enhance adaptive capacity of the vulnerable populations. This is the case for NAM, Western and Eastern Europe, and POECD, but regions such as South East Asia, Central America and Central Africa are under more severe threat (Iglesias et al., 2011) (Figure 14.13). More fully discuss the diversity in approaches between the different regions.</p>	Accepted. Specific strategies presented as possible policy interventions for high-risk areas to increase regional adaptive capacity especially in more vulnerable regions have been included. Also, cross-reference is made to Chapter 7 in WGII and Chapter 11 in WGIII to address different approaches.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29901	14	31	11	31	23	It is not recommended to rely on one paper (Iglesias et al. 2011 <- the paper title also suggests Mediteranean focus, not global) to discuss this topic. Cross reference should be made to WGII Chapter 7, which focuses on the issue of productivity and water demand for food production.	Taken into account. The correct reference is: Iglesias, A., S. Quiroga, and A. Diz (2011). Looking into the future of agriculture in a changing climate. <i>European Review of Agricultural Economics</i> 38 (3), 427–447 (doi:10.1093/erae/jbr037). This is a particular good example of world impacts by regions. Projections of changes in land productivity for the 2050s are based on global scenarios of environmental and social changes, taking into account the sensitivity of each agricultural region to these global changes. The authors defined 73 agroclimatic regions based on temperature and precipitation data from 1,141 meteorological stations and characteristics of the agricultural systems, which is consistent with the FAO Agro-Ecological Zones (FAO AEZs) and the reports on world agriculture productivity reported in Chapter 7 of WGII (cross referende is made to it). Yet, more literature which reports similar findings (although at the regional level) have been included, such as: a) González-Zeas D, Quiroga S, Iglesias A, Garrote L (2013). Looking beyond the average agricultural impacts in defining adaptation needs in Europe. <i>Regional Environmental Change</i> . DOI 10.007/s10113-012-0388. In press (available on line) b) Lee, H-L. (2009). The impact of climate change on global food supply and demand, food prices, and land use. <i>Paddy and Water Environment</i> 7 (4), 321-331
29902	14	31	25			I suggest not to use the figure 14.13 as WGII Chapter 7 should be reviewing this very topic. If necessary I suggest asking WGII to provide an appropriate figure.	Accepted. Chapter 7 team will be approached. Figure was dropped.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41905	14	31	1	32	17	<p>Several comments on this section:</p> <p>--> What are the numbers in the parentheses from lines 10 - 15 on page 31?</p> <p>--> What does the literature say regarding the purpose of technology and investment in Asia and Africa with respect to land use, Ag, and mitigation?</p> <p>--> What purposes should such investment lead to? For example, should investments be targeted so that they encourage developing nations to pursue the same path as the developed world, where it takes more energy to produce food than is in the food itself (and where that energy currently comes primarily from combusting fossil fuels)?</p> <p>--> "More technology and investment" is not an answer, unless it is directed towards a useful end. What is that end? What does the literature say about how these investments can be most usefully directed?</p> <p>-->Overall, use more bullets. Also, when giving numbers, try to give a range wherever possible. If not possible, then use "approximately" to communicate uncertainty.</p>	<p>Taken into account. Numbers in parentheses from line 10-15 on page 31 are percentage changes under scenarios A1B and E1, respectively, for the 2080s compared with current land productivity. More technology and investment in adaptive capacity is recommended by Iglesias et al (2011, above), especially at the farm level, in the means of access to irrigation for food production in order to decrease the impacts of climate change. The text has been modified to account for 'bottom-up' regional strategies to merge market forces, domestic policies and finance (Nepstad, D.C., W. Boyd, C. M. Stickler, T. Bezerra, and A. A. Azevedo (2013). Responding to climate change and the global land crisis: REDD+, market transformation and low-emissions rural development Phil. Trans. R. Soc. B. 2013 368 1619 20120167; doi:10.1098/rstb.2012.0167 (published 22 April 2013) 1471-2970. Also, cross-reference is made to Chapter 20 of WGIII, which includes examples of technology and investment for water saving irrigation methods (10-11), or biotechnology to develop crop tolerance to drought.</p>
22198	14	32	18	32	25	This is not specific to the regional level.	Rejected. We believe that are systemic regional differences in opportunities and constraints for mitigation.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41907	14	32	18	32	25	How do opportunities and barriers for mitigation differ by region? Opportunities and barriers for mitigation differ greatly by region. On average, regions with the greatest opportunities to bypass more carbon-intensive development paths and leapfrog to low- carbon development (such as countries in SSA) are facing particularly strong institutional and financial constraints that hamper the necessary investments. Often these countries also lack access to the required technologies or the ability to implement them effectively. Conversely, regions with the greatest technological and financial capacity have lower opportunities for low-cost development strategies to facilitate low-carbon development.	Taken into account. The reviewers comments are already reflected in the text in multiple sections throughout the chapter.
41908	14	32	26	35	7	This section is presented from the perspective of how leap-frogging can help developing nations to "catch up" to the developed world via clean technologies. This is an incomplete and overly-narrow perspective. The question must be asked whether developing nations need to "catch up" or developed nations need to "slow down and consume less". There is a balance here, and regional collaborations can help find it. What have we learned so far? The Chapter needs to discuss this issue, and how it relates to "leap-frogging" and the global mitigation challenge.	Accepted. Section 14.2.7 has been revised to provide a broader perspective on leapfrogging as supported by the available literature. Note that a broader discussion on mitigation pathways and on equity issues is outside of the scope of this chapter (covered in other chapters including Chapters 4-6).
41909	14	32	26	35	7	This section is weak in terms of providing a robust regional perspective on the climate finance issues. Regional development banks such as the Asian Development Bank and the Inter-American Development Bank should be consulted to get regional climate change data (or at least greater than what is available here). UNFCCC as well as the World Bank keeps some limited regional climate financing data as well.	Accepted. Text deleted, as covered in Ch. 16.
33907	14	33	43	33	44	It seems the sentence: "...More common are studies examining low development roadmaps...", should look like: "...More common studies are examining low development roadmaps..."	Editorial/Rejected. Proposed edit would change intended meaning of existing text
41910	14	33	29	33	39	The chapter fails to consider a central issue about energy and development -- that energy development depends on a range of limited resources; such as land and water. Incorporate the concept that other constraints besides cost, finance, and human capacity can limit low-carbon development options. For example, land and water can limit as well. Food, water, land, and biofuels provides a cogent example. Incorporate this concept into analyses and discussions.	Accepted. We discuss that endowments matter for energy options. We cannot have a very detailed discussion in the chapter, but this is also covered elsewhere.
35324	14	35				The map here is problematic. It is suggested to change the map. Even if the map has to be remained, it should be replaced by a border free map.	Rejected. The information in the figure would be lost if the country level analysis would no longer be made. Borders reflect current UN practice.
24195	14	35	15	38	21	A paragraph focusing on the "role of the public finance" should be added.	Accepted. Text deleted, as covered in Ch. 16.
33931	14	35	15	38	21	A paragraph focusing on the "role of the public finance" should be added.	Accepted. Text deleted, as covered in Ch. 16.
28109	14	35	20	25	21	Concerning the 10 billion \$ of public finance mentioned in this sentence: What is the source of this information? Moreover, there should be a corresponding information in ch. 16 (not possible to find) and a reference in ch. 14.2.8. to a corresponding statement in ch. 16.	Accepted. Text deleted, as covered in Ch. 16.
24196	14	35	21			"10 billion \$"is quite controversial, there should be a note on that to reflect opinions on both sides.	Accepted. Text deleted, as covered in Ch. 16.
33930	14	35	21			"10 billion \$"is quite controversial, there should be a note on that to reflect opinions on both sides.	Accepted. Text deleted, as covered in Ch. 16.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22199	14	35	25	35	37	This is not regionally specific. Could cut or shorten.	Accepted. Text deleted.
28110	14	35	27	35	34	It is proposed to delete ch. 14.2.8.1 (in particular lines 27-34) and instead to add general reference to ch. 16 in ch. 14.2.8. Moreover: Unclear why overview in ch. 14.2.8.1. contains specific information presented here and not other information concerning public and private finance which are mentioned e.g. in executive summary of ch. 16 (choice of information in ch. 14.2.8.1 looks arbitrarily).	Accepted. Text deleted.
24194	14	35	15	35	17	CIF of the world bank can not be account as public finance since it is not under the convention and finance provide as loan not grant	Accepted. Text deleted.
24199	14	35	15	35	25	this paragraph dose not reflect the topic of this part. CDM is a mutually beneficial setup aim to help developed country to meet their emission reduction target under the KP. CDM can not serve as a example as Private sectors or public private partnerships. Thus, finance flow through CDM is not comparable with public finance.	Accepted. Text on p. 35 is deleted.
33918	14	35	15	35	17	CIF of the world bank can not be account as public finance since it is not under the convention and finance provide as loan not grant	Accepted. Text deleted.
33917	14	35	15	35	25	this paragraph dose not reflect the topic of this part. CDM is a mutually beneficial setup aim to help developed country to meet their emission reduction target under the KP. CDM can not serve as a example as Private sectors or public private partnerships. Thus, finance flow through CDM is not comparable with public finance.	Accepted. Text on p. 35 is deleted.
24193	14	35	13	56	11	as the basis of this chapter is dividing countries into 10 regions, results and conclusions result from all heterogeneity or other relevent analysis from page 3 to page 34 are based on this grouping. While the latter part of this chapter, start from page 35 to page 56, reviews and analysis based on sigle country or existing traditional classification of countries. This inconsistence make the conclusions and foreseens unreliable. Suggest to either change the grouping of the latter part of this chapter as same as the former or the otherwise.	As regards Regional Trade Agreements and other agreements, we have to respect the composition of these agreements, which is not always in line with the general definition of regions used elsewhere in this chapter.
33913	14	35	13	56	11	as the basis of this chapter is dividing countries into 10 regions, results and conclusions result from all heterogeneity or other relevent analysis from page 3 to page 34 are based on this grouping. While the latter part of this chapter, start from page 35 to page 56, reviews and analysis based on sigle country or existing traditional classification of countries. This inconsistence make the conclusions and foreseens unreliable. Suggest to either change the grouping of the latter part of this chapter as same as the former or the otherwise.	As regards Regional Trade Agreements and other agreements, we have to respect the composition of these agreements, which is not always in line with the general definition of regions used elsewhere in this chapter.
41911	14	35	26	35	37	This section is very heavy on CDM, especially as it is becoming less relevant.	Accepted. Text deleted.
31146	14	35	27	35	28	There is a need for more consistency between figure stated here "between 2008-2010, 60-160 billion \$ of private climate finance flowed annually from industrialized to developing countries," and figures stated from same source in Ch. 16, lines 11-16 - there is a discrepancy.	Accepted. Text deleted, as covered in Ch. 16.
24197	14	35	31	35	32	"and investments leveraged by industrialized countries' public funds (20-90billion usd per year)" need reference. Usually public finance will lelverage private finance, not the other way around.	Accepted. Text deleted, as covered in Ch. 16.
33919	14	35	31	35	32	"and investments leveraged by industrialized countries' public funds (20-90billion usd per year)" need reference. Usually public finance will lelverage private finance, not the other way around.	Accepted. Text deleted, as covered in Ch. 16.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24198	14	35	35	35	37	Delect these two sentences since reference of Buchner et al., 2011 is not correctly used. referenced paper states "Out of the estimated USD 97 billion in global climate funding, on average USD 55 billion is provided by the private sector, while at least USD 21 billion is provided by public budgets. Private funding is in the form of direct equity and debt investments, to which bilateral and multilateral agencies and banks also contribute another USD 20 billion by leveraging the public funding they receive. A relatively small share – less than USD 3 billion – is provided by carbon markets and voluntary / philanthropic contributions. Public finance is raised through carbon market revenues, carbon taxes and general tax revenues." That is not the definition of public under the convention.	Accepted. Text deleted, as covered in Ch. 16.
33920	14	35	35	35	37	Delect these two sentences since reference of Buchner et al., 2011 is not correctly used. referenced paper states "Out of the estimated USD 97 billion in global climate funding, on average USD 55 billion is provided by the private sector, while at least USD 21 billion is provided by public budgets. Private funding is in the form of direct equity and debt investments, to which bilateral and multilateral agencies and banks also contribute another USD 20 billion by leveraging the public funding they receive. A relatively small share – less than USD 3 billion – is provided by carbon markets and voluntary / philanthropic contributions. Public finance is raised through carbon market revenues, carbon taxes and general tax revenues." That is not the definition of public under the convention.	Accepted. Text deleted, as covered in Ch. 16.
35325	14	36				The map here is problematic. It is suggested to change the map. Even if the map has to be remained, it should be replaced by a border free map.	Rejected. The information in the figure would be lost if the country level analysis would no longer be made. Borders reflect current UN practice.
41912	14	36	1	38	21	Section needs more references. The authors contend that all emitters of GHG's should be charged the same price. Overly-narrow perspective, and potentially flawed and controversial argument. Perhaps this section should include a link to section on discount rates. However, all emitters of GHG's do not gain the same benefit from those emissions; or the same benefits from climate mitigation. There is a strong argument that the emission price should be linked to the value of abatement to a region - otherwise some regions are paying for the sins of others (especially since GHG's remain in the atmosphere for ~200 years). The authors should take care not to assert that the optimal outcome is not a single carbon price. GHG's are not the same as a commodity, and cannot be treated with the same economic principles. For example, coastal SE Asia is suffering from GHG's that Europe and the U.S. emitted over a century ago. Should they pay the same cost as developed nations? Re-evaluate and balance the economic principle of "one price" with the economic principle of "Price should reflect value" and the social justice principle of historic wrongs and unequal impacts. How could regions balance these principles to advance common goals? How have they in the past? Could they organize according to groupings of the ratio of abatement costs to benefits - or to geography?	Rejected. Comment unclear and not relevant to the topic of this section (regional distribution).
33921	14	36	2	36	10	#1 comment: should be discussed following the new defined 10 areas as page 4 para 2 stated. #2 comment: "besides the Kyoto mechanisms...the following will discuss some..." . In the following part, CDM and JI are discussed. But CDM and JI are Kyoto mechanisms. relevent discussion on CDM and JI should be deleted.	Accepted. The regional descriptions in the text will be revised using the regionals definitions on p. 4. The second part of the comment is unclear.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
33922	14	36	7	37	20	#1 comment: should be discussed following the new defined 10 areas as page 4 para 2 stated. #2 comment: too much effort on CDM, dilute the intention and narrowed the content of reviewing on climate-specific policy instruments related to finance. suggestion 1: discuss this issue with more clear classification, for instance, multilateral instruments, bilateral instruments, governmental and non-governmental instruments, et al.. suggestion 2: more importantly and totally missing from this chapter is to present how many tons GHG mitigated by developing countries under CDM for developed countries to help them fulfill their commitment under the convention. And to do an analysis on cost-effectiveness between money invested by developed countries and GHG mitigated by developing countries for developed countries.	Accepted. The regional descriptions in the text will be revised using the regional definitions on p. 4. The second part of the comment is unclear: the purpose of the section is to describe actual financing instruments, of which the CDM is the most relevant. Bilateral instruments are covered in Ch.15.
33923	14	36	7	37	20	either to delete CDM related parts or add some analysis on market failure in 2012, uncertainty of carbon market, dramatic fall of carbon price, and the future of CDM during 2012-2020 and beyond 2020.	Rejected. The general discussion on CDM performance is done in Ch. 13. Here, only its regional effects are assessed. Text remains unchanged.
28112	14	37	27			"pledged" should be replaced by "committed"; the latter corresponds to wording in relevant UNFCCC decisions.	Accepted. Text revised accordingly.
41913	14	37	8			This figure is missing the axes, suggest to add description or delete figure.	Accepted. Figure is revised with full labels.
28111	14	37	8	37	9	Figure lacks x-axis labeling.	Accepted. Figure is revised with full labels.
24938	14	37	21	37	31	The regional breakdown does not correspond to the ten regions identified at the start of the chapter, e.g. Pacific OECD for Japan, Australia and NZ. Suggest that this is amended to ensure consistency	Accepted. Text revised accordingly.
33925	14	37	7	37	9	no Y axis, need to be specified	Accepted. Figure is revised with full labels.
28113	14	38	1	38	10	Rather strong country focus instead of regional focus.	Accepted. Section has been shortened and focused on regions
41914	14	38	17	38	21	What is the basis for saying "REDD has the potential to tackle a good part of the 12 - 20% of emissions...."? Be more specific. How much? What are the goals? How much has been achieved? Provide citations to support assertions.	Accepted. We no longer make this claim.
22200	14	39	27	39	30	This is true for climate specific activities, perhaps less so for climate relevant activities which may have other aims on which optimisation is done. Also, for reasons of dynamic efficiency (over time, as opposed to static efficiency at a certain moment) it may be desirable to support certain technologies in their development phase so they are available at a later stage. this is the case for renewables and CCS.	Taken into account. This remark is completely correct. However, due to space limitations and due to the rather general scope of this section, we do not want to go into too much detail here. From an economic point of view, it is optimal to have ONE carbon price and use other instruments to achieve additional goals, e.g. the development of climate-friendly technologies, e.g. R&D subsidies. Second-best policies that use one instrument to follow two or more goals, are usually inefficient. Unfortunately, we do not have the space to elaborate these details here.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28114	14	39	3	39	4	What is the rationale behind the argument that several regional agreements are better than one global agreement? Need to add evidence / arguments why several regional agreements are better than one global agreement.	Taken into account. The rationale has been added.
41915	14	39	30	39	30	Suggest changing "inefficient" to "less efficient" in line 30.	Rejected. "efficient" means that an objective is achieved at minimum cost. A solution which does not meet this requirement, is not efficient, i.e. inefficient. The term "less efficient" would imply that there are several degrees of efficiency, which is not possible given the definition of efficiency.
25785	14	39	34	39	37	This part should be kept in the final version report because market-based mechanism such as emission trading has several problems. Volatility of emission permit prices affects volatility of product prices as evidenced by fluctuating price developments in the EU-ETS. Therefore, the market-based policy tools of cap-and-trade cannot provide credible incentives for the technological change, as described in (Montgomery, 2005, abstract) and (Baldursson, 2009, page29). In addition, CO2 leakage caused by the implementation of the ETS happened actually through transfer of industry from one country to others. Market mechanisms at least under Kyoto-like international scheme, where the condition of all countries' meaningful participation is not met, do not work well, as shown in (Rosendahl, 2011, abstract), (Aichele, 2012, page336), and (Peters, 2011, page1). These literatures are listed in the No9 line of this table.	Accepted. However, as this is the introductory part, we do not go into much detail here. Problems of the EU ETS are discussed in more detail elsewhere in this chapter.
22201	14	39	34	39	36	They also restrict the use of often cheaper priced international offsets	Taken into account. The very general statement made in lines 34 to 36 does not exclude this particular aspect. However, we do not want to go into too much detail in order to avoid a long list of specific measures and regulations here.
22202	14	39	37	39	40	Others include providing free allocation and access to international offsets to regulated entities	Rejected. We did not find peer-reviewed literature on this. Moreover, the word "include" in this phrase implies that there may be other measures beyond those mentioned here. In this introductory section we do not want to provide a comprehensive list, but only mention the most important ones discussed in the peer-reviewed literature.
24474	14	39	40	39	42	I agree this description. It is very important.	Accepted

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
32080	14	39	5		19	DELETE	Taken into account. We did not delete this paragraph, but shortened it drastically. We still think that definitions of climate specific and climate relevant are needed. However, the reviewer is correct in that this paragraph needed drastic cuts.
33924	14	39	23	39	24	change "one key message of" to "one of key messages"	Taken into account. The phrase containing the "key message" has been dropped for two reasons. 1: Another referee suggested to shorten this paragraph substantially. 2: An introductory section on regional cooperation should not selectively mention (and thus emphasise) one of several key messages.
33194	14	4	1	6	8	Executive summary: please include in square brackets after each paragraph in which section of the chapter these results and related discussions can be found.	Accepted. Will be implemented in final draft.
41874	14	4	2	4	44	This comment relates to the unclear definition of "leap-frogging". The authors appear to use "leap-frogging" in the context of moving from a low level of development (e.g. low HDI - human development index) to a high level of development without the use of carbon-intense energy sources, such as fossil fuels. However, there is no literature evidence presented that such a transformation has occurred in human history - or is even practical at the current state of technology. As such, this definition of "leap-frogging" would be of a theoretical nature, and of questionable relevance to the issue of establishing regional cooperatives to help developing nations to grow while simultaneously reducing global GHG emissions. When presenting a clearer definition of leap-frogging, and in conducting analyses of the literature in regards to a clearer definition, use a broader perspective of leap-frogging that includes practical as well as theoretical concepts. For example, in developing nations, the per-capita GHG emissions are already much lower than in developed nations. Thus, their challenge is not to "develop while mitigating their current emissions", but rather to "develop along the most reasonable low-carbon pathway available to them - to reduce future emissions". Their per-capita emissions will inevitably rise. To what extent is mitigation (e.g. reduction of current per capita emissions) currently viable or reasonable for these nations?	Accepted. We now have a more precise definition of leap-frogging that is focused on the moving directly to low-carbon technologies.
35320	14	4	20			In this sentence, firstly Taiwan should be referred to as Taiwan Province of China and East Asia should also include Hong Kong SAR and Macao SAR.	Accepted and changed
24189	14	4	20	4	20	"China" and "Taiwan" should not be juxtaposed in this way, since Taiwan is a province of China, namely, only part of it, so for the region of East Asia, it could be expressed as: East Asia(China (mainland+Taiwan), Korea, Mongolia)	Accepted and changed
33894	14	4	20	4	20	"China" and "Taiwan" should not be juxtaposed in this way, since Taiwan is a province of China, namely, only part of it, so for the region of East Asia, it could be expressed as: East Asia(China (mainland+Taiwan), Korea, Mongolia)	Accepted and changed

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41879	14	4	27	6	8	In terms of heterogeneity, to what extent does governance come into play? A region cannot deploy low-carbon technology if it does not first have the governance structures that enable a society to use such technologies at large scale. How could low-carbon development flow "bottom up" in the developing world, as opposed to the "top-down" economic view embraced here? Is this a leap-frog pathway?	Accepted. The issue of capacity and governance is discussed explicitly as a barrier to leap-frogging.
41880	14	4	32	4	32	What is meant by the phrase "low-carbon intense economies"?	Accepted and reworded.
19188	14	4	4	4	5	They have different patterns of atmospheric composition but you are afraid to measure it.	Rejected. If we understand the comment correctly, this is an issue for the science of climate change and cannot be addressed in our chapter.
41878	14	4	4	4	9	Executive Summary, Section 1.1: This section seems to have a "perspective problem" it should be more balanced. In general, there seems to be insufficient evidence in the literature to support the assertions. References to support the assertions need to be included. Also, cross-reference Chp 4.3.2. Additional comments to provide further information are provided.	Accepted. Text is streamlined and adapted.
41882	14	4	45	5	8	Overall, this characterization is overly normative, and the section needs a more thorough and balanced discussion of different types of cooperation - including cities and local level cooperation (e.g. ICLEI). There are many types of regional cooperation for carbon mitigation outside of the EU-ETS. Chapter needs to do a better job of setting out lessons learned from past experience in regional cooperation. Should add a general comment along the lines of "There are many types of cooperation." Then enumerate them and categorize according to how they can help address the many technological, economic, social, cultural, and behavioral aspects of climate mitigation. Answer the question of "what are the different types of regional cooperatives and what are their relative strengths and weaknesses relative to the climate mitigation challenge".	Much of this is covered by Ch 15.
28094	14	4	45	4	47	What does "very costly" mean? Present your underlying assessment! If you present the cost of mitigation measures, then please put them into perspective of respective damage costs in the case of inactivity.	This is discussed in the section on energy in more detail. Also, ES has been reworked.
26271	14	4	5	4	6	14.3.2.3 Regional examples of cooperation schemes where synergies between adaptation and mitigation are important could be shortened to 14.3.2.3 Regional examples of cooperation schemes	Accepted. Section has been shortened substantially
28095	14	4				This ES differs strongly from the other chapters' ES. For the sake of consistency it should be structured in the same way. For instance, it lacks an introductory paragraph (reason for this new chapter, key questions etc.) and a final paragraph outlining research gaps. The whole ES is presented as a list, that doesn't read well and looks preliminary. It would add to the comprehensibility of the ES if the key results/messages were presented in bold in the first sentence of each paragraph followed by underlying arguments, uncertainty language and a reference where in the chapter the reader can find more on the respective issue. Sometimes the statements are very imprecise and leave very much room for interpretation. What does e.g. "very costly" (p.4, l.46), "substantial"(p.5, l.3) and "some regions" (p.5, l.6) mean?	Accepted and implemented
41875	14	4	2	6	8	Sub. Sect. 3: More clearly discriminate between "leap-frog" and "mitigate", and write more clearly and concisely in general. As written, this section tends to create confusion.	Accepted. We clarified the discussion.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41876	14	4	2	6	8	This comment also has to do with leap-frogging. Does the literature truly indicate that, when all factors are considered, that less-developed nations truly have more opportunity to "leap-frog"? They do have less sunk capital, and therefore less need to reduce current emissions. But they also have less capacity (financial, technological, and work-force). If a "more practical" definition of leap-frogging is used, whereby leap-frogging applies to the addition of new economic capacity, then some of the literature would indicate that, given their extreme levels of relative wealth and capacity, developed nations may have greater ability to leap-frog with regards to their new industry and economic capacity. Overall, use a more balanced approach to the concept of leap-frogging, and consider multiple aspects of this concept.	Accepted and this point is made in the text early on about the barriers to leap-frogging (section 14.1)
41877	14	4	2	6	8	The authors assert that the literature indicates that developed nations have small opportunity to "leap-frog". Yet, the Stern Report clearly demonstrated that, due to their high technological and human capacity, developed nations could enhance their economic growth over "business as usual" if they fully embrace low-carbon development. Thus, if leap-frogging is applied to "new growth" (e.g. incremental additions to existing capacity), the literature indicates that advanced nations have a large capacity to "leap-frog" in this regard. Again, think more carefully about the multiple perspectives of "leap-frogging" presented in the literature and how they apply differently to the issue of regional cooperation - in both a theoretical and practical sense.	Thanks
33912	14	4	20	4	20	delete "Taiwan". Taiwan is within China's territory , not an individual nation.	Accepted and changed
31262	14	41	18			cross ref with 15.5.3	Accepted. Cross reference inserted.
22204	14	41	18	42	22	This section could be shortened.	Noted.
41918	14	41	18	42	44	This section is confusing and has some odd subject-verb disagreement problems in key passages. Revise. Also, please remember that the purpose of this chapter is not to do a literature review of articles on the EU ETS system. The purpose is to help understand the many ways that regional cooperatives can help address the climate challenge. What are the lessons learned from the EU-ETS experience, and how can that help other regions to build more effective collaboratives? This should be addressed.	Taken into account. EU ETS is a regional cooperation mechanism. So all aspects of its functioning are relevant, and the literature assessed covers those. The lessons for other regional ETS's are clear.
41919	14	41	18	42	44	It is suggested that these lines are rewritten or deleted as they don't add to the text as currently written.	Noted.
22205	14	41	20			Insert "European Parliament".	Accepted. Text revised accordingly
22206	14	41	20			Inappropriate language. "Stakeholders" or "civil society" would be better. But more generally this sentence doesn't make much sense as this is the normal legislative process. It would be sufficient to say that the ETS has evolved since its first adoption in 2003	Accepted. Reference to activity of industry lobbies in shaping ETS has been added.
24475	14	41	23	41	25	There is no contents of EU-ETS's general critique. It is inadequate just to refer some literatures.	Rejected. Comment does not provide textual suggestions. General discussions about appropriateness of ETS is covered by Ch. 15.
22207	14	41	23			Insert "annually" after "CO2 emissions".	Accepted. Text revised accordingly
22603	14	41	23			Suggest change to "initially over 2 Bt of CO2" or "around 2 Bt of CO2" because emissions have been below 2 Bt since 2009. That is, unless one counts aviation emissions from 2012, when the sector was brought under the EU ETS.	Accepted. Text revised accordingly.
22604	14	41	39			Suggest change to "The release of the 2005 emissions data in April-May 2006..." because the data became public in April, and that was also the month in which the huge price fall happened. May 15 was the official date of the release, but by then the market had already responded.	Accepted. Text revised accordingly.
22203	14	41	4	41	4	With the notable exception of the EU, which through its European Climate Change Programme has developed a whole list of regional initiatives, including the EU ETS (others include the F-gas Directive, the CO2 and cars Directive, the CCS Directive but also the Effort Sharing Decision.	Noted.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28115	14	41	43	41	43	Please add "p.a." after "230 million t CO2"	Accepted. Text revised accordingly.
28116	14	41	44	41	44	What does this number 450 Mt CO2 refer to? Accumulated Emissions 2008 – 2012 without CER/ERU?	Rejected. For 2008-2012, as clearly stated at the end of the sentence.
28117	14	41	46	41	48	The European Commission made its proposal for the 3rd trading phase – including the cap – in early 2008, i.e. well before the emergence of the financial crisis, and the same cap path was adopted in the final directive by the end of 2008. Thus we propose to change the paragraph to "Prices fell by two thirds but did not reach zero because allowances could be banked beyond 2012. The Commission set a more stringent centralized emissions cap for the period 2013-2020 (see Skjærseth, (2010) and Skjærseth and Wettestad, (2010) 47 for the details of the new rules and how interest groups and member states negotiated them). In contrast to expectations by then, the economic crisis persisted longer contributing to a situation where the surplus accumulated in the 2nd phase is not compensated by an equivalent shortage in the 3rd phase, so that an excessive allowance supply may well persist during the 3rd phase."	Accepted. Text revised accordingly.
22605	14	41	46			Suggest change to "..., and the Commission acted to set what was seen as a more stringent cap for the period 2013-20". After all, the cap has turned out not to be objectively stringent; it also corresponds to the least stringent option in the 20%-30% interval within which the EU has determined to set its 2020 reduction target.	Taken into account. This is an ex-post rationalization. Text revised to take into account allowance surplus in phase III and "backloading" discussion.
28118	14	41				There is no mentioning that current low price levels of allowances due to oversupply of allowances have undermined the effectiveness of the European ETS.	Rejected. See p. 42, line 34-36.
32217	14	41	3	42	37	Reviewers were asked to suggest where chapter 14 could be shortened. I suggest moving the section examining the EU emissions trading scheme to the relevant sections in chapter 15, sections 15.5.3. Although the EU scheme is a regional one, there is better analytical coherence to be gained from discussion alongside other national emissions trading schemes, for which the EU ETS has provided a number of lessons.	Rejected. The EU ETS is a regional scheme, decision has been made to keep it in Ch. 14.
24939	14	41	3	41	17	Suggest including text on the Regional Greenhouse Gas Initiative - a relevant regional climate change initiative. Information on RGGI can be found on the RGGI website (http://www.rggi.org/).	Rejected. This is not regional in the definition of Ch. 14 (=transnational)
41916	14	41	3	42	44	There are more regional climate policy initiatives than have been discussed here, though all are not emissions trading schemes. For example, consider RGGI. It is officially in the northeastern States in the U.S., but it effectively includes Canada - because those states purchase power from Canada. The same is true for other U.S. regional initiatives. This section also lists a number of successful initiatives, while also calling them "rare". They are not "rare". They abound. What is rare is highly regulated emissions trading schemes. Revise section to more thoroughly assess the range of different types of regional collaboratives, and their strengths and weaknesses. Reduce the overly-normative focus on collaborations similar to the EU-ETS.	Rejected. RGGI does not fulfil the definition of regional in Ch. 14.
41917	14	41	3	42	44	This entire section is wordy and confusing. It is difficult to determine what points the authors are trying to make, and how the literature supports or refutes them. Make clear message points. Concisely discuss the literature relative to these. It is hard to do a technical assessment of an unclear point.	Noted.
28121	14	42	12	42	12	It should be "...high after the 2006 and 2009..."	Accepted. Text revised accordingly
22208	14	42	19	42	19	Although smaller operators can use the services of intermediaries (brokers) too	Taken into account - text revised. The transaction costs related to MRV on the company level, not the small brokerage fees.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24476	14	42	2	42	8	<p>Although there is a description that higher shares of auctioning are not jeopardizing competitiveness, this concrete evidence is unknown and it should be deleted.</p> <p>And more, there is a review that analyzed the effects of all-auction-approach in Australian ETS by Paul Simahuser [1], executive of Infrasture division at Babcock & Brown Limited.</p> <p>[1]Paul Simshauser On Emission Permit Auction vs. Allocation and the Structural Adjustment of Incumbent Power Generators in Australia Original Research Article The Electricity Journal, Volume 21, Issue 10, December 2008, Pages 30-41</p>	Rejected. The reference quoted by the comment is not relevant in the context of the EU ETS. The text remains unchanged.
22209	14	42	22	42	25	This is an odd statement, as the Swiss have only had a binding ETS system since 2012, while the study seems to be from 2009. Before this date there was a voluntary system (in combination with a tax) to which the EU ETS couldn't have been linked. Negotiations are under way now for linking	Rejected. The study is about Swiss interest in linking to the EU reflected in Swiss political debates throughout the 2000s. Text unchanged
22210	14	42	26	42	27	Not true. The percentage of offset use authorised in the national Allocation Plan shall be	Accepted. Text revised accordingly.
28122	14	42	26	42	28	To our knowledge, no projects were approved that could have generated certificates. According to information from the EEA, no CER/ERU were used during 2005-2007. Thus we propose to delete the sentence "In 2005-2007, companies covered by the EU ETS could import credits from the mechanisms without limit, but access to the mechanisms has been reduced over time. " and add the sentence "But supply of credits was higher than expected, which caused a fall of CER/ERU prices and consequently further pressure on EU ETS prices. "	Rejected. Comment mixes up issues. Companies could use CERs in 2005-7, but as this was before the start of the 1st Commitment Period, this would not be reflected in country registries. Second sentence is not backed by peer-reviewed literature.
28123	14	42	31	42	31	Please add "But supply of credits was higher than expected, which caused a fall of CER/ERU prices and consequently further pressure on EU ETS prices." at the end of the paragraph.	Rejected. As comment does not provide reference, text is not changed.
23375	14	42	32	42	37	Specific: Could extend discussion on policy interaction EU ETS and others, to point out that once cap is fixed, policies to support energy efficiency or renewables which lead to lower emissions by installations covered by the ETS will not reduce emissions (so far the text only points out that the price will be lower). Hence the magnitude of the effect of these policies depends on the extent to which their effects are considered and (correctly) foreseen when the cap is set. Whether the existing mix of policies is cost-efficient is controversially discussed in the literature. (see also my comment Number 9).	Rejected. The interaction of national level policies (ETS vs RE/EE subsidies) is topic of Ch. 15. Here, only literature that explicitly looks at EU ETS characteristics is taken up.
24477	14	42	34	42	37	It should be more emphasized that EU-ETS does not generate price signals that are high enough to mobilize renewable energy and energy efficiency investments. It's very important viewpoint.	Rejected. Text is clear in that respect, no change needed.
25100	14	42	37	42	37	Add after allowance the following; "Frondel et al. (2010) studied cost effectiveness of Interaction of the EU ETS with Feed-in-Tariff to promote renewable energy. Comparing the marginal abatement costs of PV and wind energy in Germany with the permit price at that time, it concluded that "from an environmental perspective, it would be economically much more efficient if greenhouse gas emissions were to be curbed via the ETS, rather than by subsidizing renewable energy technologies such as PV and wind power" (pp. 4052-4053). For citation; Frondel, M., Ritter, N., Schmidt, C.M., Vance, C. (2010). Economic impacts from the promotion of renewable energy technologies: The German experience. Energy Policy 38(8), 4048-4056.	Taken into account. Reference is added with, but not the complete text as the message is already captured in the existing text.
28119	14	42	4	42	4	Please add after "profitability of steel sector": "(compared to full free allocation) and, in several assumed conditions, even largely preserve profitability compared to a situation without emissions trading, due to the possibility for partial pass-through of allowance prices., while in their analysis. For the cement sector..."	Rejected. The suggested text does not lead to a relevant improvement, text is not changed.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28124	14	42	42	42	44	This information is out of date. We propose to substitute the text with the following: "Another jurisdictions had signed on as observers. But by 2012, only California and Quebec had established a cap-and-trade system (both starting operation January 1, 2013, with the option to link the two markets later on in 2013). British Columbia, Ontario and Manitoba are still partners of the WCI, thus principally interested in trading, but so far, no concrete steps for implementing an ETS have been undertaken."	Accepted. Text revised accordingly
28120	14	42	8	42	8	Please add after "not jeopardizing competitiveness": "In the 3rd period the share of auctioning is be far below 50 % for most of the industry sectors."	Rejected. This is already reflected in first sentence of para, text is not changed.
31147	14	42	38	42	38	Suggest replacing the phrase "consisting of US and Canadian states" with "consisting of US states and Canadian provinces".	Accepted. Text revised accordingly.
25522	14	42				Though it is interesting to illustrate in details the regional exercises in the Climate change cooperation under regional trade agreements, concerning the reducing the pages, the whole section can be further abridged. All sub theme about regional cooperation can be listed in the table rather than giving comprehensive discussion.	Rejected. The literature on RTAs and the environment/climate is very diverse, ranging from sophisticated econometric models using multiple-stages methods to deal with endogeneity issues to verbal law-and-economics analyses. We seriously considered using a table or a figure as a synopsis, but we did not succeed - for the reason stated above.
41920	14	42	45	47	26	<p>This section could be stronger with a Nordpool example, explaining characteristics that make it effective, tech transfer to African power pools. Getting regional electricity markets and trade to work, is an essential feature of a successful mitigation program. The role of transmission, regional markets and trade, and system operating capability play a major role in both the economics and feasibility of intermittent renewables. Nordpool in Scandinavia. Denmark has about 24% of its generation capacity in wind turbines. They export over 80% of the output from these turbines to Norway and Sweden via the Nordpool wholesale market. This reflects the mix-match between domestic load and the wind output, and the complementary generation resources in the larger regional pool.</p> <p>For example, Lang shows that the cost of wind capacity in a small Australian system is almost double the cost of the wind generation itself. In contrast, the example of Nordpool shows that being able to trade internationally in a competitive market makes integration of wind both (somewhat) cost effective and feasible.</p> <p>There probably should be a mention of the decoupling model as it requires serious regulatory adjustments since it completely changes the structure in which utilities earn their revenues from energy savings as opposed to sales. More on Central Asia, and Africa (EAPP, WAPP, SAPP) cross border power pools and energy trading. It isn't possible to compare western examples and think they could be replicated in the developing world. Markets will have to be customized to the region, but common shared policy/economic goals could be highlighted. The report missed mentioning activities on micro-lending in the energy sector.</p>	Accepted and we now have a fuller discussion of NordPool and other power pools as well as gas grids
22211	14	43	28	43	31	consistent with the Member State's complementarity provisions.	Noted

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41922	14	44	38	45	18	There is no mention of adaptation and planning for resiliency with hydro projects major issue globally with droughts and need for alternative baseload power. There is a strong correlation between the impact of the power pool on the ability to develop a lower carbon energy sector. There are an estimated 100,000 to 150,000 MW of hydro generation resource potential in DRC and Cameroon, yet this capacity cannot be developed without a combination of (1) electricity sector reform, so that the state utilities are properly run and sustainable, and (2) regional wholesale market development, and corresponding regional grid development.	Accepted. The correlation between the development of the power pool and the ability to develop a renewable energy sources has been incorporated into the section on power pools for energy resource sharing. The necessity of planning for adaptation and resilience given the vulnerability of hydropower to droughts and other impacts of climate change as been incorporated into the section "regional cooperation on hydropower".
22212	14	45	21	45	21	European "Community", not "Commission". or one could say "several directives proposed b y the European Commission and adopted by the EU MS and EP	Accepted.
22213	14	45	21	45	21	Insert "European Parliament".	Accepted.
22214	14	45	21	45	24	Replace "Commission" with "Community"	Accepted.
22215	14	45	22			Replace "issued" with "adopted".	Editorial. Copyedit to be completed prior to publication.
22216	14	45	31	45	31	Replace "introduced" with "proposed".	Editorial. Copyedit to be completed prior to publication.
40758	14	45	19			Taking up only one region of the world (EU) is biased. This part should be merged into "Regional cooperation on energy in page 44"	Taken into account. Propose to make regional cooperation on energy the section 14.3.2.3 and make the other items become subitems of this section.
32081	14	46	25		34	DELETE	Rejected. This paragraph provides an evaluation of the progress made by the contracting parties to the energy community treaty regarding the adoption of RES legal and regulatory frameworks and the most urgent issues to be addressed. The paragraph has been modified to improve clarity and mentions now concrete barriers to be adressed. Moreover, the more recent step of adoption of the EU RES directive 2009/28/EC has been added to incorporate up-to-date information on the process.
22217	14	46	41	47	26	It would be pertinent to mention other regional hydropower initiatives here, such as in the Mekong Basin	Accepted. Section has been redrafted to include referees comments. The Mekong basin has been mentioned as an example.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41921	14	46	41	47	16	How are African Power Pools funded, what is their organizational structure? Is there an opportunity to improve regional collaboration in low-carbon energy development by putting carbon performance standards into energy infrastructure projects funded by global/OECD sources? If so, what is the potential for these? If available, what is their history and what are the lessons learned so far?	Accepted. Comment has been incorporated into the text.
41923	14	46	41	47	16	Adaptation should be woven through all sections in the document, not just highlighted in this particular piece. It is important to discuss the integration between mitigation and adaptation. Adaptation has positive economic drivers, increases resilience, holistic innovate, addresses development goals, social epidemics, etc.	Rejected. Given the scope of the chapter, it is impossible to add adaptation issues throughout. Also, the peer reviewed literature on the link is still not very precise, and mostly not related to the regional level.
33908	14	46	6	46	6	the word "advance" should be changed to the form of "advancing", and the sentence should look like: "...have contributed to advancing the introduction of RES..."	Editorial. Copyedit to be completed prior to publication.
41924	14	47	17	47	26	Further highlight the value of "south to north" information flows" from developing nations to developed countries. What types of information has flowed this way, and how has it helped address the mitigation challenge?	Noted. For space reasons, it is difficult to add a discussion of this in the chapter.Q242
41925	14	47	17	47	26	This section is confusing, and focusses too much on exceptions. Focus more on commonalities.	Accepted. Section has been redrafted to include referees comments. The Mekong basin has been mentioned as an example.
33911	14	47	17	47	26	This part which deals with the regional cooperation in hydropower seems a bit sketchy and incomplete, with just nine lines of texts, and apparently lacks of necessary reference to small hydro power(SHP) which remains to be further tapped around the world with minimal environmental impacts, particularly in some rural areas of developing countries where resources are available and electricity access is urgent, and just run-of-river type of facilities fit local need. In fact, China is doing well in this regard, and has made huge efforts to promote the healthy development of SHP in many developing countries through regional collaboration, for example, organizing the annual training activities to build the capacity for those technical and managerial staffs from Kenya, Laos, Cambodia, North Korea, Uganda, Papua New Guinea, Nepal, Malawi, and Tanzania, etc., and helping design and install the small hydro plants, provide the equipment for the countries like Indonesia, Sierra Leone, Vietnam, Kosovo, Angola and Pakistan, etc. So this paragraph needs to be further updated as per the comments given by the reviewer.	Accepted. Section has been redrafted to include referees comments. The Mekong basin has been mentioned as an example.
24200	14	49	48			need evidence and example to support the argument on "it id invtrasingly common for agreements to also transfer technology experiences from south to north"	Accepted. Text will be edited to provide supporting examples.
33928	14	49	48			need evidence and example to support the argument on "it id invtrasingly common for agreements to also transfer technology experiences from south to north"	Accepted. Text will be edited to provide supporting examples.
41926	14	49	32	53	46	These types of cooperation should be highlighted and detailed much more in this chapter. Additional examples may include LEED, ICLEI, C40, AISI.	Rejected. The agreements provided by the reviewer are not regoinal agreements and are already included in Chapters 13 and 15 as national, subnational or international agreements.
28098	14	5	22	6	8	These results are not presented in a very straightforward way; the text seems repetitive and partly contradictory. Do these regional cooperations have an impact or not? If there is potential, why is it not used? Be short and concise.	Acceptor and executive summary is streamlined in this matter.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41884	14	5	23	6	8	This section is an example of how the chapter is too wordy, repetitive, and confusing as written. Shorten this significantly. Also the 1st paragraph of Sect. 14.1.2 states that regions matter for 2 reasons, yet only one reason is given.	Accepted and we cut and rewrote that section
41885	14	5	23	6	8	Should the definition of what constitutes a "region" be moved up earlier in chapter 14? This may be particular relevant since it is argued earlier (that is, before pg. 8) climate change regional cooperation has been ineffective without first defining what a region is. Also, when defining a region, use a broader perspective. Regions do not have to be geographic. They can also consist of disparate locations with common interests (e.g. security, economic growth, etc).	Accepted. This is now discussed at the beginning with the definition of regions.
41883	14	5	25	5	25	What is meant by the EU's "advanced stage of regional integration", and why is this so critical to the EU's policy successes in mitigation? This is really a key point that the chapter should consider more fully. It can be argued that regional cooperatives cannot make the sort of GHG reduction agreements that the EU has without first developing a comparable integration at the political, social, cultural, and security level. How much has the EU (and other areas) actually reduced its emissions from a consumption basis? The emissions may not be entering the atmosphere from within EU borders, but the EU has certainly "outsourced" some emissions to other regions. To what extent has the EU-ETS reduced emissions versus "outsourcing" emissions? Consider this issue more fully when contrasting the relative strengths, weaknesses, successes, failures, and lessons learned from the different types of regional cooperations. From a regional perspective, would it be easier to attack emissions from the "consumption" or "production" perspective? Which approach might have more success in developing regional agreements? Perhaps this should become a greater focus in the chapter.	Accepted. We now discuss these issues in more detail. Clearly it is the case that the EU is unique in the sense that there states have given up a lot more national sovereignty and that has enabled the creation of binding commitments for mitigation. We also discuss the emission transfer issue.
41881	14	5	3	5	6	Regarding the statement: "While the mismatch 3 between opportunities and capacities varies across sectors and countries, it implies that in a business as usual scenario many developing regions cannot implement low-carbon development strategies". The authors should consider inserting (see below IN CAPS) that "... many developing regions cannot implement low-carbon development strategies without FINANCIAL AND TECHNOLOGICAL INVESTMENT AND SUPPORT FROM THE ANNEX 1 COUNTRIES [OR SOMETHING SIMILAR]". It is inaccurate to say that many developing regions cannot implement low-carbon development strategies (see China/emerging Asia, for instance) and this sentence needs to be more nuanced in terms of its potential of the developing regions in terms of low-carbon development.	Accepted. We emphasize that there are ways to address this mismatch by support from outside. Although even so, it will remain a challenge.
28096	14	5	3	5	3	What does "substantial" mean? Present your underlying assessment!	Substantial means large. This is clarified further below.
21395	14	5	33	5	35	Important message for policy makers. Should not be deleted.	Accepted and retained.
25784	14	5	33	5	35	This part should be kept in the final version report because market-based mechanism such as emission trading has several problems. Volatility of emission permit prices affects volatility of product prices as evidenced by fluctuating price developments in the EU-ETS. Therefore, the market-based policy tools of cap-and-trade cannot provide credible incentives for the technological change, as described in (Montgomery, 2005, abstract) and (Baldursson, 2009, page29). In addition, CO2 leakage caused by the implementation of the ETS happened actually through transfer of industry from one country to others. Market mechanisms at least under Kyoto-like international scheme, where the condition of all countries' meaningful participation is not met, do not work well, as shown in (Rosendahl, 2011, abstract), (Aichele, 2012, page336), and (Peters, 2011, page1). These literatures are listed in the No9 line of this table.	Accepted.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22180	14	5	33	5	35	This is not correct, the reduction objective has been achieved. This is guaranteed by the cap. What is true is that the objective has been achieved at lower than expected carbon prices, in part due to over-allocations (phase 1) and in part due to the economic downturn (phase 2.). The result is that the price signal for future reductions is less than anticipated.	Accepted and implemented.
32074	14	5	35		40	DELETE	Rejected. This is a key finding and backed up by the peer-reviewed literature.
28097	14	5	6	5	6	What are these regions?	This is clarified in the relevant text of the chapter
22179	14	5	7	5	8	This statement applies to countries as much as to regions.	Accepted but we want to highlight that these options differ by region as we do in the relevant text of the chapter.
41927	14	50	8	51	32	Barriers and perceived barriers should be highlighted and brought out clearly in the chapter. They are currently buried in the text.	Accepted. Text revised to better highlight barriers and perceived barriers.
40759	14	50	8			Relevancy of initiatives described in this section should be reviewed, and possibly be trimmed or deleted as a whole.	Taken into account. The initiatives in this section are deemed to be relevant to the scope of the chapter and will be edited for clarity but not deleted.
31148	14	51	37	51	38	The APP's stated purpose was to build on the foundation of existing bilateral and multilateral initiatives, consistent with and contributed to the Partners' efforts under the United Nations' Framework Convention on Climate Change, while complementing the Kyoto Protocol. If there was any perception by some (that it was presented as alternative to KP), it would be important to include the official view so that the reports does not appear to be biased. Suggest, rewording the sentence starting on line 37 as "The Partnership was launched to build on the foundation of existing bilateral and multilateral initiatives, and was consistent with, and contributed to, the Partners' efforts under the United Nations' Framework Convention on Climate Change, while complementing the Kyoto Protocol (APP Fact-Sheet http://www.asiapacificpartnership.org/english/about.aspx#Vision)." However, it was perceived by some as an alternative to the Kyoto Protocol (Backstrand.....)."	Accepted. Text edited to reflect this comment and new reference added to http://asiapacificpartnership.org/english/about.aspx#Vision
31149	14	51	41	51	41	Reference to the development of a global carbon market is not correct. We suggest the deletion of "...and the development of a global carbon market", or substantiating this claim with a proper reference/source.	Rejected. This phrase is in quotations, and has been taken from a peer reviewed publication and referenced accordingly.
41928	14	51	47	51	47	Perhaps include the World Bank and National Investment Banks (e.g. U.S. Import-Export bank) in the discussion? These entities have regional objectives as well, and normalization of objectives amongst financial institutions could help accelerate the deployment of the most effective low-carbon development strategies.	Rejected. A discussion of World Bank and National Investment Banks are outside of the scope of the chapter, and are covered in chapter 13 and 16 respectively.
24940	14	51	33	52	42	Suggest including text on the Global Carbon Capture and Storage Institute - this section looks at inter-regional technology cooperation. Information on the GCCSI can be found on the GCCSI website (http://www.globalccsinstitute.com/), particularly under the "About the Institute" tab.	Accepted. A reference to GGSI has been added to this section.
21396	14	51	33	52	4	I fully support the descriptions about GSEP and APP.	Noted.
30512	14	51	33	52	4	I fully support the descriptions about GSEP and APP.	Noted.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22218	14	52	44	53	24	As this section is about bi-lateral agreements I suggest cutting it for space as its relevance for regional development and cooperation is not made clear	Rejected. As of the SOD, no other chapter is specifically addressing bilateral agreements, therefore it was decided across the policy chapters that they would be covered in Chapter 14's discussion of regional agreements.
40760	14	52	43			<p>Only EU and US led initiatives are introduced and this is not exhaustive in view of the choice of countries and initiatives. Japan is also engaged in many technology cooperation initiatives and those including green innovation and clean energy cooperation. For example, Japan-India Strategic and Global Partnership(http://www.mofa.go.jp/region/asia-paci/india/pm1010/joint_st.html), a series of sectorial dialogues with China (so far more than 120 projects have been signed such as smart-community cooperation etc.), with Indonesia, with Vietnam, with ASEAN,with Mongolia etc. (See Japanese white paper on Energy 2011)</p> <p>If shortening is needed, this section as a whole should be deleted because this is biased in only picking up western led initiatives.</p>	Accepted. The section on bilateral initiatives has been modified to include a more diverse regional representation. The section cannot provide an exhaustive list, but only a sampling of initiatives from around the world. Note that this comment applies to section 14.3.3.3 not 14.3.3.1 as the reviewer has provided exclusively bilateral and not regional initiatives.
22219	14	53	25	53	46	Similar to the point above. This section mostly deals with individual countries and does not take a regional perspective. I suggest cutting due to word limits	Taken into account. The initiatives in this section are deemed to be relevant to the scope of the chapter and will be edited for clarity but not deleted.
41929	14	54	1	54	33	Using the EU example as a basis for regional cooperation is not compelling if the EU-ETS was not as successful as anticipated. These lines contradict earlier text about the debated success of EU-ETS . Citations to literature on the effectiveness of the EU-ETS could strengthen section. If there is a research gap, it should be detailed clearly in the gaps section.	Accepted and implemented.
33926	14	54	16	54	16	delete word " copenhagen"	Accepted. Text deleted.
31150	14	54	6	54	8	The IEA projection of investment needed to maintain GHG concentration of less than 450 ppm CO2 is a 2009 source - is there a more recent figure?	Taken into account. All finance data is cross referenced with Chapter 16 when possible.
33910	14	55	16	55	16	A dot should be removed after the word "region".	Accepted and implemented.
33909	14	55	1	55	10	The numbers given in this paragraph seem to be quite confusing and illogical. In the first part, it is mentioned that the financial assistance flows for South-South development reached USD 15 billion by 2010, later it's said that only China's foreign aid and support even counted up to USD 25 billion in 2007. More glaring is the last part: "Indian contributions reaching approximately USD 610 billion in 208~2009 ! ", Maybe the word "billion" is mistakenly used for "million" !	Accepted. Text will be checked for accuracy and edited accordingly. All finance data is cross referenced with Chapter 16 when possible.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41930	14	55	11	56	11	<p>There are a number of inconsistencies and gaps here. Rethink and revise the section while considering the following points:</p> <p>For point #1. The mitigation challenge is only expensive in the context of our perverted and inaccurate energy markets, which do not internalize security costs, environmental costs, and the macroeconomic impact of wealth transfers. If energy price were accurately calculated and these externalities included in the LCOE, then mitigation would be much cheaper (and possibly a net-positive in terms of cost/benefit).</p> <p>For point #2. The information presented in the chapter does not support the statement that regional collaborations have not played an important role to-date. There is no consistent basis from which to make this statement. There have not been many EU-ETS style collaborations, but the EU-ETS may not be an effective mechanism in many parts of the world. For example, how many European "reductions" have been offset by increased emissions in other nations that now manufacture the goods that the EU consumes? This conclusion cannot be made, as the authors have not established a uniform set of parameters to judge success by.</p>	Accepted. Section has been cut and rewritten and no longer has these inconsistencies.
41931	14	55	11	56	11	<p>Section 14.4 could be expanded significantly. It would be helpful to show evidence of effectiveness. The paper could become more practical if an advocacy platform was created for each of the three groups described on pg 55. By describing how regions should think through setting priorities, share information and softer outcomes to capture innovation.</p> <p>line 36, 37 It would be informative to show some examples here.</p> <p>What about Kenya's draft policy on carbon trading, South Africa, Morocco Kazakhstan national emissions trading system, Ukraine, Vietnam, Thailand, India 'Perform, Achieve, Trade</p> <p>Explain how/key barriers. Some of the barriers/concerns currently under debate regarding the possibility of linking the CA market w/ Montreal involve weighing the potential costs and benefits along economic and environmental lines. All potential converging markets must think through the following:</p> <ul style="list-style-type: none"> -->Coordinating legal and regulatory frameworks within context of international law --> Consistency in transparency about market mechanisms and compliance --> Consistency of definitions and market rules for use of compliance instruments --> Consistency of enforcement of market rules --> Ability to respond quickly to unforeseen contingencies and to take action to address them <p>(University of California Energy Institute Emissions Market Assessment Committee Quarterly Meeting September 24, 2012)</p>	Rejected. Most of the examples are examples of countries and thus should be treated in chapter 15. We do emphasize, however, the potential of regions to play a greater role in mitigation as suggested by this comment.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41932	14	55	11	56	11	<p>Section 14.5 Expand this section. As presented in this chapter, the knowledge base is too "Euro-centric", or even OECD-centric. The analyses are too dependent on top-down macroeconomic assessments that are dependent on an inaccurate estimates of energy cost that do not factor in externalities, and do not adequately account for governance issues and diversity of needs/capabilities of different regions. This weakness needs to be addressed. The authors need to more fully discuss the literature on evaluating how regional collaborations in the developing world can operate on a different economic paradigm than the OECD, one of sustainable provision of essential human services. This literature is a bit sparse, but the authors can summarize what is known and identify key areas for future analysis.</p> <p>The authors should more fully discuss how more knowledge on the extent of developed-world "GHG outsourcing" is needed, as well as how more information on how to address this issue through regional cooperation and shared trade objectives is needed. We also need more information on how adaptation will limit mitigation options (and vice-versa).</p> <p>Most of all, more success stories are needed. Provide examples of how regional collaboration to further low-carbon, sustainable development can improve quality of life and economic well-being.</p>	Accepted. Agree that we have far too much on the EU per se. At the same time, we now treat the EU more as examples of scope and limits of regional cooperation simply because the EU has gone furthest in developing and implementing binding policy measures related to mitigation, including the EU-ETS as well as various directives with mitigation implications. So the EU is seen more as an example than as a region that should receive more priority in the discussion.
33927	14	55	16	55	40	<p>should be discussed by 10 regions defined in the beginning of this chapter not by industrial countries, emerging economies, and poorer developing countries</p>	Rejected. As we say in the beginning of the chapter, much of the peer-reviewed literature is not available at the regional disaggregation used in the chapter. We therefore have to rely on classifications that are used in that literature.
28125	14	56	15	56	18	<p>What does "public good" mean in this context? It is not clear, why mitigation gets a larger share.</p>	This section has been rewritten so that the comment no longer applies.
41933	14	56	5	56	7	<p>The draft states: On the other hand, regional bodies can take on a much stronger role in directly coordinating, implementing, and monitoring national or supranational mitigation policies..."</p> <p>As written, the chapter does not provide justification to support this statement. More citations, more expositions, more discussion/analysis, and more information needs to be provided with regards to this issue.</p>	Accepted. We now have a fuller discussion of why regions can play a useful role here.
24941	14	56	12	56	20	<p>Suggest including reference to some more recent initiatives that are building regional (and broader) cooperation on mitigation, but may not yet be the subject of academic literature, such as the World Bank Partnership for Market Readiness (this is not a purely regional initiative similar to the information on inter-regional technology cooperation) and the Asia-Pacific Carbon Market Roundtable.</p> <p>Information on the PMR can be found on the PMR website (http://www.thepmr.org/). APCMR materials are not public. However, the speech given by Australia's former Parliamentary Secretary for Climate Change and Energy Efficiency at the October 2012 APCMR meeting provides some useful summary information on the APCMR (http://www.climatechange.gov.au/minister/previous/mark-dreyfus/2012/speeches/October/SP20121026.aspx). New Zealand's Ministry of the Environment serves as APCMR Secretariat.</p>	Rejected. We have to limit our discussion to a selection of initiatives where some concrete action has taken place and ideally where there is some peer-reviewed literature. There are many discussion fora some of which might lead to concrete action but until then it is impossible to list all of such discussions.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41934	14	56	12	56	20	The reviewers agree with many of the statements about the gaps in the literature on evaluating cooperation schemes in the mitigation, but since that is the fundamental issue in the chapter, the statement seems to undermine much of what was previously said and implied. Revise to be more consistent. For example, authors could comment more fully on the lack of literature on assessing the mitigation potential of climate-relevant regional cooperation agreements, and discuss priority issues that future research should pursue in this regard.	Accepted and implemented.
41935	14	56	12	56	20	The final section on Gaps in Knowledge and Data could consider adding a list of specific questions to lay out some of the key issues that are lacking data, information and research (See Gaps section in Ch 3). With this approach gaps could be actively shared with grad students/advisors/others to research.	Accepted and implemented.
22181	14	6	1	6	3	Please qualify this statement.	Accepted. This statement is now discussed more thoroughly and qualified.
32075	14	6	16		27	DELETE	Rejected. It is important to note that this is a new chapter and to make the link with previous assessment reports
22182	14	6	29	7	14	Very well-structured questions. Also a helpful explanation of how the chapter is structure, making it easier to read and glean key messages.	Thanks
32076	14	6	39		45	DELETE	Rejected. It is important to provide an overview of the chapter to guide readers.
32077	14	7	1		6	DELETE	Rejected. It is important to provide an overview of the chapter to guide readers.
22183	14	7	22	7	40	This point is not specific to regional development	Accepted. This section has been reduced. But it does point to regional heterogeneity, a major element of our chapter.
41886	14	7	15	8	28	This may be a good section to cut as it is a repeat of exec summary (pg 4). FAQ14. 1 seems repetitive as well	Accepted and implemented.
35321	14	8	19			In this sentence, firstly Taiwan should be referred to as Taiwan Province of China and East Asia should also include Hong Kong SAR and Macao SAR.	Accepted and changed
24190	14	8	19	8	19	"China" and "Taiwan" should not be juxtaposed in this way, since Taiwan is a province of China, namely, only part of it, so for the region of East Asia, it could be expressed as: East Asia(China (mainland+Taiwan), Korea, Mongolia)	Accepted and changed
33895	14	8	19	8	19	"China" and "Taiwan" should not be juxtaposed in this way, since Taiwan is a province of China, namely, only part of it, so for the region of East Asia, it could be expressed as: East Asia(China (mainland+Taiwan), Korea, Mongolia)	Accepted and changed
31144	14	8	30			This is not a particularly useful FAQ and could be removed to help shorten the chapter. This information already is explained in the text.	Rejected. We think it is important to highlight that there are different ways to define regions and that this matters for the findings. It is also important to clarify how we think about regions.

Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 14

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
41887	14	8	30	8	45	Inaccurate perspective and arguments. There is a lot of capacity to innovate outside of the regions listed (N. America, Western Europe, East Asia, Japan/Aus/NZ). It is just a different type of capacity than is found in OECD nations. These less technologically developed nations have a lot of small-scale innovation in biofuels, natural heating and cooling (e.g. energy efficiency), small-scale wind/solar/hydro, and operating in a world where limited energy is present "as available" instead of unlimited energy available "upon demand". The less-developed nations have also built significant capacity to work with limited "as-available" energy (as opposed to unlimited "on demand" energy), something the developed world is struggling with.	Accepted. The discussion has been broadened to reflect this.
35322	14	8	38			In this sentence, firstly Taiwan should be referred to as Taiwan Province of China and East Asia should also include Hong Kong SAR and Macao SAR.	Accepted and changed
33929	14	8	38	8	38	Taiwan should be deleted	Accepted. We use the official IPCC treatment of Taiwan.
33896	14	8	38	8	38	"China" and "Taiwan" should not be juxtaposed in this way, since Taiwan is a province of China, namely, only part of it, so for the region of East Asia, it could be expressed as: East Asia(China (mainland+Taiwan), Korea, Mongolia)	Accepted and changed
22184	14	9	1	9	9	This point is valid but not specific to regional development.	Noted.
31145	14	9	10			This FAQ reads more like a rationale for why research in this area is important. Rather, FAQs should be used to help the non-specialist reader better understand important and complex concepts presented in the chapter. Suggest focusing the FAQ in a more strategic manner.	Accepted and implemented.