

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
29095	0	0	0	0	Approved outline includes a bullet on Rural leapfrogging opportunities. Present draft addresses urban rural linkages to some extent but not as much on opportunities for rural settlements. Just to keep in mind for SOD	Noted and taken into account	Minal Pathak	Ahmedabad University	India
41757	0	0	0	0	The Chapter in general has much room for improvement including additional sections, cases, literature, lessons and discussions incorporated to come up with a comprehensive version of it.	Taken into account with new structure	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
44975	0	0	0	0	In the context of the PA, while countries have targets that shall represent the highest ambition and must periodically report the degree of progress, sub-national administrations lack of specific targets which causes that many times the action of cities on climate change is more motivated by issues under their specific responsibility as air quality. Given its transcendental role, it is necessary to underline the importance of a governance that ensures the alignment of urban strategies with the national targets and the involvement of cities in meeting national targets under the Paris Agreement.	Noted	Jorge Pina	ENEL	Spain
43107	0	0			Many figures need enhancement in resolution.	Addressed in updated figures	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43119	0	0			Complete the citations in this chapter.	Editorial	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
16315	0				Consider adding a section to Chapter 8 that explicitly deals with sustainability education in both schools and nontraditional settings. Sustainability education (or education for sustainability) is a nascent field and incorporating data from this may help to conceptualize the transition pathway more clearly.	Taken into account. Education as a x-cut with other chapters, cross-refer	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16317	0				Consider adding a section to Chapter 8 related to peace studies, and how the linkage between war and resources has typically been over territorial rights that are moot if a city is largely sustainable via its own endemic systems.	Noted. Piece as a x-cut with other chapters, cross-refer	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16319	0				Consider expanding the treatment in Chapter 8 related to how social systems in traditional societies serve to maintain sustainability, and how these are being adapted for use in urban settings. A stronger treatment of the role of extended families and women's status would also be in line with this suggestion.	Noted. Perhaps as an x-cut with other chapters.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
28217	0				A peer reviewed -interactive process resulted in 23 Quick wins in the Transport Sector to address Climate Change and Sustainable Development, several of which are relevant to the urban context : http://www.ppmc-transport.org/wp-content/uploads/2016/11/SLoCaT-Quick-Wins-Report-1.pdf	Noted, will read the document and integrate into the co-benefit parts if needed.	Cornie Huizenga	CESG	Germany
33169	0				I would suggest to include legislative direction from government level to develop climate smart residential, commercial, industrial and other urban infrastructure in city areas and other settlements	Noted. Caution with prescriptions.	Edris Alam	Rabdan Acadmey	United Arab Emirates
33623	0				In this chapter it is important to keep the attention firmly on everything relevant to mitigation. Cross-check with WGII Chapter 6 for overlap re vulnerabilities, impacts, adaptation. Some of the introductory material could probably be reduced.	Done.	Debra Roberts	EThekwini Municipality	South Africa
33625	0				Check: is there a full section on ideal design of future (as yet to be built) cities, in different development scenarios, based on current understanding? We keep hearing about this window of opportunity to leapfrog, in the light of high urbanization rates, but is the information there to help policy makers do that? In fact, there is a justification to have two complete major sub-divisions in this chapter: (1) reducing emissions in developed cities and (2) avoiding future emissions in informal/non-industrialized/underdeveloped/non-existent cities, leap-frogging. Both are equally important. Or at least having these distinct headings under each sub-heading across the chapter.	Noted, but difficult to include a section on the ideal design of future cities. Much literature on sustainable cities, but the evidence on many features is thin. Not sure how much literature on ideal design of informal/non-industrialized, etc. cities. Perhaps we could hold a virtual workshop to gather evidence, case studies, publish a paper.	Debra Roberts	EThekwini Municipality	South Africa
33627	0				This chapter could include a section on 'imagining the ideal future city' for different regions, one of the methods mentioned in Chapter 1, as one means to accelerate action. This could be very useful in the context of rapid urbanization in Africa and Asia, and all the urban areas that will have to be built but do not yet exist. What could they look like? What is happening in this area? Are municipalities in these developing nations looking ahead, planning, imagining? How should all these new urban dwellers be accommodated so they can live equitable, liveable, low-carbon lives?	See above.	Debra Roberts	EThekwini Municipality	South Africa
33629	0				Check: it would be nice to see some evidence of how urban design in underdeveloped countries, with rising urbanization, high poverty and low employment rates can work together to avoid emissions, provide jobs, create healthy living space, etc. Is this possible, is there literature on this, how can it be done?	Noted but limited literature on future cities in developing countries	Debra Roberts	EThekwini Municipality	South Africa
33631	0				This chapter is highly highly important in mitigation, urban is one of the key areas of transformation and transition identified in SR1.5. It is also the place where all other key transition sectors overlap. As such this chapter should be highly accessible to everyone, with really no jargon at all. What does 'urban form' actually mean? Which characteristics of a city fall under 'form'? What is 'elasticity'? What does 'granularity' mean to urban scientists? Important messages could be augmented with schematics.	Taken into account	Debra Roberts	EThekwini Municipality	South Africa
33633	0				In general the headings and subheadings are not very intuitive to work with. The headings – especially 4th level - do not give a good idea what is covered. For better or worse, people still think in terms of sectors, or services (water and other services, transport, retail, housing, etc) and it would be more intuitive to see major headings along those lines. When you think about city living, this is what you think about. The functional aspects.	Taken into account	Debra Roberts	EThekwini Municipality	South Africa
33635	0				Check: what one expects from this chapter is a clear roadmap to systemic mitigation in urban environments, both reduced emissions and sequestration. This chapter needs to have clear tables and figures that contain this information, so that it can be elevated to SPM easily. Urban is one of the 4 (and the one that unites the other 3) systems transitions identified in SR1.5. This chapter is probably the most important in the whole report in terms of solutions and options. It needs to lay out options for different development status and regions clearly. It will be a major go-to chapter. Retrofitting vs planning ahead, individual vs city level options, plus in the different sectors. Information must be easy to navigate.	Noted. Systemic transition based mitigation opportunities (development context dependent options) in urban environments as a x-cut with other chapters	Debra Roberts	EThekwini Municipality	South Africa
33637	0				Whole chapter: it feels as if cities in developing countries are under-represented in the discussion so far. Issues such as retrofitting existing, partly informal, cities with basic services, e.g. waste water systems in Africa and Asia, clean water and power and general infrastructure provision, etc. These are extremely important topics in the light of sustainable development (emphasis on development). This should come up when discussing leap-frogging. One wants to see a comprehensive list of options of ways in which new and growing cities in Africa and Asia (in response to urbanization) can avoid the dead-end unsustainable designs of the North, and install better systems to begin with. What have we learned from the North, how can we do it better going forward? Such a section should be long and comprehensive. This chapter should aim to present in detail options of how one can build a 100% carbon neutral city, utilizing new and ancient knowledge, big data, renewable energy, etc. with basic services for all.	Taken into account.	Debra Roberts	EThekwini Municipality	South Africa
9867	1	1	75	69	the urban people have many interest with different background of social-economy condition, therefore they Will be difficult to be managed with one option.	In the SOD, we will strive to consider a wider reflection of the differing socioeconomic and socio-political conditions across all urban areas.	Taufiq Ramdani Karim	University of Mataram	Indonesia

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25927	1	1	194	33	The structure is sound and well balanced. All relevant topics are taken into consideration. There are no specific sections on Adaptation, on trade-offs and synergies between mitigation and adaptation at the urban scale, which could be added	Noted. We will discuss if and how our chapter discuss the associations between mitigation and adaptation on the urban scale.	Edoardo Croci	Bocconi University	Italy
1863	2	9	2	9	Add sub-head 8.2.3 'Urban Expansion- Regional Context' and modify succeeding sub-heads accordingly	agreed. Will add a sub-section here that discusses regional differences in expansion trends	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1865	2	13	2	13	Add sub-head 8.2.5 'Urban emissions - mitigators and Resilience' , modify succeeding sub-heads accordingly	We are not entirely clear what this comment intends. The entirety of section 8.3 deals with mitigation. Hence, it is not clear why there would be a sub-section in section 8.2 on this topic?	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1867	2	17	2	17	delete 'of options'	Done	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1869	2	22	2	22	Add sub-head 8.3.3.4 -achieving zero haradous Landfill , modify succeeding sub-heads, accordingly	Accepted. Mention ZHLs and SD criteria in CDM projects	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1475	2	1	4	3	This chapter mainly emphasizes the GHG emissions in the urban area with great content, rather than the "urban systems and its settlements". For example, anthropogenic heat is also a concern for many cities (e.g. urban heat island and heat wave), especially in the context of climate change. Moreover, there have been more mortalities induced by the increased urban extreme temperature. However, the associated content is rare through this chapter. Should we add more perspectives to make it complete?	Taken int account. In the Adaptation part there can be references to Mit-Ad, Ad-Mit options.	JUNGUO LIU	Southern University of Science and Technology	China
43093	2	8			Either to split setion 8.2.1 into; 8.2.1.1 (formal settlemets) and 8.2.1.2 (informal settlemets) or merge 8.2.1.1 into 8.2.1 as there is no 8.2.1.2 in the existing form of chapter 8.	Noted and taken into account with new structure	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43095	2	10			Section 8.2.2 needs much clearer title than the existing, and stil need references from the authors. I suggest: "Decarbonization opportunities by replacment of urban infrastructures."	Taken into account. OL to CLAs: can we change section title?	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43097	2	11			Section 8.2.3 needs much clearer title than the existing. I suggest: "Decarbonization opportunities by replacment of urban infrastructures."	Noted. But section focuses on the inter-governmental aspects of urban infrastructures. Perhaps a better title for section would be: Intergovernmental nature of urban infrastructures and carbon lock-in	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
34583	3	11	3	11	Formatted: Bold (from 8.4, 8.5, 8.7, and 8.8)	Agreed	Ova Candra Dewi	Universitas Indonesia	Indonesia
1871	3	44	3	44	Add Sub-head 8.8.5 ' Urban-Rural Interface' , modify succeeding heads accordingly	Noted	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
33639	3	1	194	1	This chapter relied extensively on the simple reproduction of figures from published papers. This should not be the norm. Ideally, the figures in the chapter should be authors reproduction/reinterpretation/assessment of what has been published and tailored the figures to suit the purposes of this report. For instance, there a many figures with regions that are indicative of IPCC regions. Where possible, the authors should consider requesting the original data and reproducing those figures with panels/bars suited for this report.	Agreed and new figures in SOD	Debra Roberts	EThekwini Municipality	South Africa
33641	3	1	194	1	When revising the chapter, it is important to remember that this report has a global audience and many readers will come looking for information specific to their countries/region. In all instances, authors will have to ensure that all issues assessed have relevance to all the IPCC regions and where information is missing, this has to be stated.	Agreed	Debra Roberts	EThekwini Municipality	South Africa
33643	3	1	194	1	8.3.5.7 only where an attempt was made at assessing the language. Might also be useful for the author team to read the entire draft to ensure consistency in the narrative and avoid replication of arguments in different sections.	Agreed. The Lead Authors will go through the entire chapter, minimize repetition, and ensure appropriate assessment language is used.	Debra Roberts	EThekwini Municipality	South Africa
1873	4	1	4	1	Add sub-head 'Augmented Urban System'	Rejected. Urban systems are under constant change, so adding such section doesn't add much in light of the limited length.	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India

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1875	4	1	4	1	After above Add sub-head ' Value- edition solution to Urban issues'	Rejected. See above. Also unclear what this phrase actually means.	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1877	4	1	4	1	After above Add sub-head ' Development and Welfare Economics'	Declined. We already have some similar subsections, such as competitiveness and economic development, equity.	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
1879	4	1	4	1	Add reference: 'Urban Studies and the challenge of embedding Sustainability : A review of international master Programmes- O Bina, L Balula, M Varanda, J Fokdal (2016)' Preparedness efforts	Done	Alka Bharat	Department of Architecture & Planning, M.A.National Institute of Technology (An Institute of National Importance),Bhopal (M.P.)	India
26795	5	1	5	8	The bolded sentence mentions "inclusive manner" but none of the remaining sentences in the paragraph address the issue of inclusion. It should include substantiating text for this paragraph.	agreed. Language will be added to support the use of "inclusive" in the bolded sentence.	Keely Maxwell	U.S. Environmental Protection Agency	United States of America
12929	5	3	5	3	Why is it a once-in-a-lifetime strategic opportunity? Do the authors imply that climate change/GHG emissions have offered this opportunity?	Agreed that this is not the appropriate language to use in this summary bullet. We will remove that phrasing to read, "There is a strategic opportunity..."	Prashant Goswami	Institute of Frontier Science and Application	India
38861	5	3	5	4	This is unscientific language, please revise.	Agreed. Will be changed "once-in-a-lifetime" phrase.	Julian Reyes	Personal Capacity	United States of America
12097	5	3	5	8	Please consider highlighting here the benefits that sustainable city development may have on other areas e.g., the food system and land use	As this is executive summary, I am not certain if we can refer to such benefits for other sectors here.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
44207	5	8	5	8	the factor ten is very impressive, there is enough evidence in literature confirming that can be achieved?	Noted. Will check.	BERTOLDI PAOLO	European Commission	Italy
12931	5	10	5	10	Are the authors suggesting building new cities as mitigation of climate change (and possibly abandoning the old ones)?	I suggest we discuss this. To me, this sentence does not imply building new cities for mitigation and abandoning existing ones.	Prashant Goswami	Institute of Frontier Science and Application	India
47785	5	10	5	16	Suggest include short list of major raw material types (wood, steel, concrete) to justify point being made; Summarize what the main effect is in rural areas, the causal link is not clear, why raw material use in cities will effect (positive/negatively) rural areas.	Yes, can provide examples as suggested (e.g., wood, concrete, steel), and add a sentence or phrase on impacts in rural areas.	Martino Tran	University of British Columbia	Canada
12099	5	12	5	12	Please consider being more specific on what kind of effects the high raw material demand will have for rural areas	Yes, see above	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
12103	5	24	5	26	Please provide a reference on where to find these numbers in the report.	Noted, yes, important to provide the pages in chapter where this is discussed and referenced.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
1723	5	32	5	32	It would be good understand the IPCC's definition of the global south. Perhaps the team might like to reconsider the use of this phrase?	AS: Noted. This should come in the glossary.	Aarsi Sagar	Global Green Growth Institute	Republic of Korea
12105	5	32	5	32	In the definition of Lock-in in the Glossary please include a sentence defining carbon lock-in specifically	Noted. Glossary.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
11123	5	32	5	37	Promotion of electrification & avoidance of carbon lock-ins is the key to achieve the Paris goals, and thus, promotion of electrification in uraban system should be clearly written in the Executive Summary.	Noted.	Midori Sasaki	Industrial organization	Japan
12107	5	34	5	37	Please consider to be more specific in terms of type of resources	Yes, we can be more specific.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
37465	5	36	5	37	Not clear what is meant by "bring climate change actions to a halt". Consider rephrasing.	Yes, we can rephrase.	Michiel Schaeffer	Climate Analytics	Netherlands
12109	5	40	5	40	Please specify/exemplify "cost-effective options"	Partially accepted. The related statement is kept in the Executive Summary while further exemplified in the chapter.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
3231	5	1	6	21	Unfortunately the statements included in the executive have not been linked with the underlying text of the subchapters. It is very important to establish such traceability.	Accepted. The related subchapters will be provided with referral in the SOD.	Klaus Radunsky	retired from Umweltbundesamt	Austria
11325	5	1	6	21	The ES is lacking cohesion, no flow, there is no storey line "past" "present" and "future" paragraphs are fragmented there is no link between the para above and below? What is the definition of City? Why there are many types of Cities scale size etc are different and this has to be distinguished in this section, Cities in large countries and and Cities in small islands are very different and this has to be taken into account	Noted	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
26797	5	1	6	21	The executive summary does not mention concepts of 'climate equity' or 'social inequitys' which are key considerations for cities and climate change, including equity within mitigation planning and outcomes. Suggest including these key concepts when framing discussion within the executive summary and the chapter as a whole.	Rejected	Keely Maxwell	U.S. Environmental Protection Agency	United States of America
26799	5	1	6	21	The executive summary gives the overall impression that cities are a conglomeration of infrastructure and buildings that are part of the carbon cycle; it does not give any sense of urban social worlds. Suggest more upfront attention to people in cities in the executive summary and the chapter as a whole.	Noted	Keely Maxwell	U.S. Environmental Protection Agency	United States of America
31313	5	1	6	21	The section of Executive Summary looks longer than allocated page limit.	Corrected	YUAN GAO	Zhengzhou University	China
33645	5	1	6	21	No line of sight provided for the messages in the Executive Summary. This has to be addressed before the SOD. In addition, this chapter is dedicated to urban systems and other settlements. However, the focus of the Executive Summary is on the urban system while it is silent on the other forms of settlements. Furthermore, the ES has not touched on possible constraints to the mitigation opportunities identified for the urban context. For instance, addressing the complexity of governance particularly in a context where governance is highly characterised by informality is an important enabler/barrier to harnessing these opportunities.	Agreed and addressed	Debra Roberts	EThekweni Municipality	South Africa

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46103	5	1	6	21	district heating and cooling is called by many different names throughout the chapter? Power to heat not mentioned? Heat storage may serve as storage for excess VRES, improving VRES economics and helping electrification of heating. Heating is significant final energy demand, in some countries 40%. Cooling is significant in others.	Accepted. Such terms as district energy networks and district heating networks is clarified earlier by the term "district energy networks for heating and/or cooling" as later used in line 18 (page 58).	Neven Duic	University of Zagreb	Croatia
46109	5	1	6	21	District cooling is not even mentioned? D.F.Dominković, K.A.Bin Abdul Rashid, A.Romagnoli, A.S.Pedersen, K.C.Leong, G.Krajačić, N.Duić, Potential of district cooling in hot and humid climates, Applied Energy, Volume 208, 15 December 2017, Pages 49-61, https://www.sciencedirect.com/science/article/pii/S0306261917313351	Accepted. The suggested reference for "41.5% lower CO2 emissions compared to the business-as-usual scenario for the year 2050" will be considered in the chapter.	Neven Duic	University of Zagreb	Croatia
12101	5	1	6	27	Please include section references throughout the executive summary	Agreed	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
3175	5	3	6	21	Please indicate the Section(s) referenced for each of the paragraphs.	Agreed	Sai Ming LEE	Hong Kong Observatory	China
44209	5	3	6	21	in the Executive Summary it is not mentioned the critical and essential role of financing, many cities both in developed and developing countries need finance to implement decarbonisation solutions, since your chapter has a very extensive and well done section of financing I suggest to summarize some findings in the executive section. I take this opportunity also to congratulate you for a very informative and interesting chapter.	Noted	BERTOLDI PAOLO	European Commission	Italy
13423	5		6		Executive Summary descriptions are uneven compared to other chapters, and short ones should be expanded to better reflect chapter contents	Noted	Gabriel Filippelli	Indiana University	United States of America
18477	5	1	30		I wonder if we could set up these key points by explaining the speed and scale and type of urban development expected- or cross referencing to where this comes up later -which might explain or justify the choice of the first 3 bullets at the top - the current points could be strengthened by indicating if these apply also to informal city development etc but its also not really clear why these first bullets are here and what types of cities they refer to yet (global North or developed infrastructure in global North and South etc) - nuancing global South and North around urban form could help?	Taken into account	Bronwyn Hayward	University of Canterbury	New Zealand
33647	5	1	124	33	This chapter is largely a review of the literature with very little assessment. It is important that the authors, in preparing the SOD, carefully move beyond a literature review to assessing the literature. In addition, a significant attempt should be made to link the chapter to other chapters of this report. In its present form, the chapter is quite disconnected from the rest of the report with limited evidence of cross chapter referencing.	Agreed. We will strive to bring more assessment to the writing and better link to other chapters.	Debra Roberts	EThekwini Municipality	South Africa
43673	5	1			Convincing and concise ES. Some urban economic considerations (not in the formalistic sense, but in spirit) would however be helpful, as they clarify fundamental causal relations not yet fully explored in this chapter. Borck Brueckner is a start: Borck, Rainald, and Jan K. Brueckner. "Optimal energy taxation in cities." <i>Journal of the association of environmental and resource economists</i> 5, no. 2 (2018): 481-516.	Noted. But it should be formalistic in some sense. The Lit will be checked	Felix Creutzig	MCC Berlin	Germany
18473	5	3		8	There is a once-in-a-lifetime strategic opportunity for future cities to be designed ..." I am anxious about this phrasing-while I appreciate the intent, to encourage urgent action, in reality cities are constantly evolving with a set of inherited conditions and limited resources and restraints for action- yet one interpretation of this phrase, especially as the first key message, is a kind of unfortunate blank slate/tabula rasa implication that there is only one shot at this, in reality most cities are developing with very limited resources, getting it right once is simply not possible because they have to plan a transition, budget and trial as they go- the best many urban communities can hope for is to become nimble and develop in a no regrets way-- and there is a huge risk using a one shot approach we get things very wrong- many of these one shot planning approaches are well beyond the financial reach of the global South or mid to low income provincial communities in the global North - trying to plan for mitigation while inheriting infrastructure and existing conditions for a- 'a fundamentally new approach' is simply not realistic or even desirable for most communities with limited resources. In short the point seems a very top down global north perspective - not representative of the nuance of the rest of the chapter ? is it more useful to take up the point you make at page 8 line 21 about cities being identified in AR5 as one of 4 critical systems with potential to accelerate change?	agreed. As per comment 12929, the "once-in-a-lifetime" phrase has been removed from this sentence.	Bronwyn Hayward	University of Canterbury	New Zealand
33649	5	13			"estimated to exceed" - are we not already exceeding what is sustainable? By quite a margin? Then this statement is not strong enough. Same comment applies to SPM statement on L32	Accepted	Debra Roberts	EThekwini Municipality	South Africa
33651	5	18			A statement is needed that most of the building will have to happen in developing countries, especially Africa and Asia, which already have a deficit of infrastructure in existing cities, and where urbanization rates are highest. It is also worth pointing to the justice aspect of the regional share of the carbon budget, in the light of this urban development.	Noted and will take into account; the issue should be more appropriately addressed in the building chapter	Debra Roberts	EThekwini Municipality	South Africa
33653	5	32		37	This is the first SPM-level message, and yet this chapter provides little useful, practical information to help this to happen. If this is the main message of this chapter, then this should be at least one of the golden threads that runs all the way through the chapter, providing information, guidance, data etc to allow this to happen.	Agreed. Will pay attention to relate to this point throughout the chapter.	Debra Roberts	EThekwini Municipality	South Africa
18475	5	32			It could be helpful to bring the carbon lock in point up higher -its a robust point with more reaching than the global South although I assume the South is where we expect most development? -it would be helpful though to nuance this global South term as it includes both informal cities and significant urban infrastructure and investment? and I know you'll know it but I wonder if the work on stranded assets for later developers eg by Bos and Gupta 2019, could enrich the critical lock in discussion you raise here? https://doi.org/10.1016/j.erss.2019.05.025	Noted; but the this is for the future. the ref provides some analysis, but additional information is not tht much.	Bronwyn Hayward	University of Canterbury	New Zealand
43101	5	32			Add a new paragraph after the fifth paragraph as following: "Housing sector represents nearly 50% of cities land use budgets which is considered a driver for the application of energy and resource efficient sustainable development. Both retrofitting existing housing sector as well as the integration of climate responsive urban form design, housing passiveness and the renewables for the yet-to-be-built urban settlements are a coin two faces. Such integration offer an opportunity for the mergance of a common methodology for a world scale housing typologies but differentiated upon the climate conditions of each region, zone and site and upon the available local materials. Moreover, the climate based urban forms of housing neighbourhoods as the frontlines for a new generations of world cities offer an adaptation co-benefit in terms of setting design codes for its geometries and green infra considering end of century projections on one hand, and offering pedestrian and occupant comfort on the other hand.". This para will be explained in a newly suggessted sub-section with references in this chapter.	Taken into account.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
31901	6	1	6	2	It is not generally true that cities have the power to implement many mitigation strategies. Typically, they would have control over building codes and some transport issues but not on many energy related issues.	In addition to building codes and transportation within the city , cities through their land use plans can have a significant effect on energy use for cooling, in addition to land use effects on transport modes and auto trips. But maybe can modify the statement.	Ashok Sreenivas	Prayas (Energy Group)	India
12111	6	7	6	10	Important paragraph - please consider moving up to the 1-2 first paragraphs of the Executive summary	noted. no need to move up as the impact is on non-urban areas.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
6275	6	16	6	16	Urban waste management is essential for sustainable development and GHG mitigation. This main statement needs to be elaborated as it in others main statement.	Yes, the statement should be elaborated to make the link with sustainable development, GHG reductions, and circular economy (including waste heat connection)	Brown Gwambene	Marian University College	United Republic of Tanzania

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12113	6	16	6	17	Please link urban waste management to the broader context of circular economy principles and urban planning by e.g. including text from p. 88 line 7-10	See above.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
26605	6	16	6	17	It could be argued that this urban waste management could be extended to waste heat as energy and materials are different forms of the same thing. It links with this chapter page 5, lines 24 to 30.	See above.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
44211	6	16	6	17	I suggest to mention also the importance fo water mangement	Accepted. Water management will be integrated in a way that is consistent with the related content, including section 8.3.3.6 (page 57).	BERTOLDI PAOLO	European Commission	Italy
12115	6	19	6	19	Please exemplify and/or include a definition in glossary on "nature-based solutions"	Agreed. Added to Glossary.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
33655	6	1			Include a comment that though cities may have administrative power they often lack the financial means and give possible solutions.	Yes, this is an important point to highlight in the executive summary and expand on in 8.4, esp. in 8.4.1.1 or even a new section. Cities may be willing, but have limited powers.	Debra Roberts	EThekwini Municipality	South Africa
43099	6	4			Add "neighbourhoods" between "blocks" and "districts"; i.e. ".....to blockes, neighbourhoods, districts,".	Taken into account in the SOD.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
33657	6	16			Expand this paragraph beyond what to do with waste, but how much waste is generated, the wasted production this implies, and how to reduce that.	See above.	Debra Roberts	EThekwini Municipality	South Africa
33659	6	23			ES still lacks clear representation of human beings and their livelihoods and needs. A paragraph on health aspects is vital, how can mitigation improve the health of the city people, with both developed and developing perspective. Health, security, mobility, various basic services (including water), etc. These could be a guide as the ES is further filled out with content.	Yes, a finding on health aspects of mitigation actions is a good addition.	Debra Roberts	EThekwini Municipality	South Africa
26607	7	30			If chapter 6, Energy, picks-up on the urban buiding heating themes set out above, then reference should be made to chapter 6 as well.	Taken into account while the focus of Chapter 6 remains on energy systems more broadly without an urban focus.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
18479	7	31			I really appreciate the urban inclusive sustainable development framing- and wonder if the new international agreements around urban agendas, SDGs and Sendial etc could inform this too - and while it maybe too early to add nuance here, somewhere bring in complexity of tradeoffs- which may leave some behind eg Hughes, S. (2017). The Politics of Urban Climate Change Policy: Toward a Research Agenda. Urban Affairs Review, 53(2), 362–380. https://doi.org/10.1177/1078087416649756	Agreed. Complexity of tradeoff will be mentioned, with suggested and other refs.	Bronwyn Hayward	University of Canterbury	New Zealand
26061	8	4	8	5	there is na emphasis on the whole chapter on the effects of population density (and implicitly, population size and growth) as it relates to the impacts of climate changes in urban areas. There is no substantive discussion in the text on the impacts of population composition or structure in urban areas (e.g., aging, education, income levels etc). Population size/density per se without an appropriate analysis of population composition is a narrow perspective about the demographic impacts in urban areas.	Partially accepted. We lack comprehensive data on this.	Alisson Barbieri	Universidade Federal de Minas Gerais (UFMG)	Brazil
6277	8	11	8	11	The statement "All cities are urban, but not all urban areas are cities". To balance the sentence there is a need to define cities and urban to differentiate, otherwise, the sentence is not necessary	Accepted; delete the sentence	Brown Gwambene	Marian University College	United Republic of Tanzania
18565	8	11	8	11	Although the statement "[a]ll cities are urban, but not all urban areas are cities" appears frequently in both popular media and intellectual pieces, it is very ambiguous because the dictionary meaning of "urban" is "related to a city". So the statement could be interpreted as "all cities are city-related, but not all city-related areas are cities". A better statement could be: "All cities are urban, but the definition of "urban" varies across countries".	Partially accepted. see above 6277; delete the sentence	Kirti Joshi	Tribhuvan University	Nepal
41593	8	11	8	12	It would be good if its mentioned that the 'urbanization is a process'	Accepted.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
29285	8	11	8	18	I would generally agree with this discussion of terminology, but I do not see this reflected in the key messages. Tightening this would be useful.	Taken into account. Glossary	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
41595	8	16	8	18	The complexities of defining the term 'urban' in different ways can be indicated or footnoted	Taken into account. Glossary	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
1501	8	29	8	35	There are two recent special issues that addressed the nexus approach for SDGs and they should be cited here. (1) Liu J., Scanlon B. R., Zhuang J., Varis O., 2020. Food-Energy-Water Nexus for Multi-scale Sustainable Development. Resources, Conservation and Recycling 154: 104565. (2) Liu J., Mao G., Hoekstra A.J., Wang H., Wang J., Zheng C., van Vliet M.T.H., Wu M., Ruddell B., Yan J., 2018. Managing the energy-water-food nexus for sustainable development. Applied Energy 210: 377-381.	Noted. The Lit will be checked	JUNGUO LIU	Southern University of Science and Technology	China
12095	8	20	9	18	The "Key points since AR5" section for highlighting relevant recent development, link to previous reports and the systemic perspective is very informative. Please consider to add a similar list for other chapters as well.	Noted. Thank you	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
18839	8	56	56	56	In the anaerobic process that goes on within a landfill, the main products are methane and carbon dioxide, whereas carbon dioxide, water, and heat are produced by the aerobic process (Wangyao et al., 2010).	Rejected. Textbook.	Michael Ugom	University of Nigeria, Nsukka	Nigeria
29287	8	20			There is also a growing body of evidence of the ways in which climate change mitigation policies are creating new forms of urban inequality and exacerbating old ones; there is also a growing body of evidence of the difficulties of existing governance systems to deliver action in urban areas; there is also a growing body of evidence evaluating urban action and seeing it as woefully inadequate.	Rejected. The Lit of equity will be checked but the comments are bit too emotional from a certain standpoint.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
33147	8				I would suggest to include legislative direction from government level to develop climate smart residential, commercial, industrial and other urban infrastructure in city areas and other settlements	Suggests discuss legislative action from gov'ts to develop climate smart urban dev. Maybe section 8.4 needs to more directly address this issue--perhaps in a box.	Edris Alam	Rabdan Acadmey	United Arab Emirates
44213	9	3	9	3	The GCoM 2018a reference is missing in references. In addition, there is the new GCoM aggregation report 2019 with most updated figures on emissions reductions in the GCoM cities. Available at https://www.globalcovenantofmayors.org/impact2019/	Taken into account. The reference details were provided as "The Global Covenant of Mayors for Climate and Energy." The new report that is released after drafting of the related text is integrated.	BERTOLDI PAOLO	European Commission	Italy
10613	9	3	9	5	I would like to suggest that this sentence should give more references or range rather than show just one reference and value in order to present the estimates of global total GHG emissions for 2019.	The estimate from the GCP (citing Friedlingstein) is the only available estimate on global emissions for 2019. In examining the Friedlingstein paper, we see the uncertainty of +/- 1.8 GtCO2 and that will be included in the text.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
37467	9	15	9	16	Which trends where lead to new urgency and why? Not clear.	This key point will be expanded to better clarify the specific trends that lead to an urgency in mitigation.	Michiel Schaeffer	Climate Analytics	Netherlands
18567	9	18	9	18	Replace "...regional and national governance" by "...subnational and national governance".	Yes, subnational is the term traditionally used, but vague in that it lumps several layers--the complexity often lies in the number of layers. We would have to make this point, if we switch to use subnational.	Kirti Joshi	Tribhuvan University	Nepal
10615	9	37	9	37	Replace "menu" to "measures"	Accepted	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
37469	9	20	10	19	Is the roadmap of chapter really necessary? Seems superflous to me given the extensive table of contents.	rejected as an overview helpful; a brief intriduction of the chapter helpfuf.	Michiel Schaeffer	Climate Analytics	Netherlands
11327	9	20	10	28	Why road map is needed? Is this change in format from other chapters??	rejected as an overview helpful; a brief intriduction of the chapter helpfuf.	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
26063	10	22	10	28	The concept "demographic transition" - a well established concept in the Demography literature - is used in the text in a narrow, and somewhat misleading way. First, this theory says that population growth and higher density are outcomes only during initial and intermediate stages of the transition, and populatio stability or even decline at the end. Second, urbanization is both and outcome and a cause of the transition (endogenous effect), not only an outcome as suggested in the text. Third, and following the previous comment, a key outcome of the transition is a drastic change in population age structure (ageing) in an urbanized society. This is also neglected in the discussion on "demographic transition".	Taken into account.	Alisson Barbieri	Universidade Federal de Minas Gerais (UFMG)	Brazil
31315	10	22	10	28	The section of 8.2 aims to describe urbanization trends across the first two of these four dimensions. Would it be better to have a simple summary of the latter two dimenstions?	Taken into account.	YUAN GAO	Zhengzhou University	China
18569	10	30	10	31	Add seventh trend: the growing consumption of land for urbanization (or rural-to-urban conversion of land). For e.g., see Page 17, line 26-30.	Taken into account. Will consolidate through cross-referencing.	Kirti Joshi	Tribhuvan University	Nepal
18571	10	32	10	33	Incomplete sentence: "First, the size and relative proportion of the urban population."	Editorial. Change to "The first is the size and relative proportion of the urban population."	Kirti Joshi	Tribhuvan University	Nepal
20247	10		14		There is only one sub-section 8.2.1.1. Informal settlement under Section 8.2.1. Should it be another sub-section under 8.2.1?	Editorial.	Thi Lan Huong Huynh	Viet Nam Institute of Meteorology, Hydrology and Climate change	Vietnam
25929	10	1	47	16	A section with an assessment of urban vulnerabilities (environmental, social, economic, etc.) to climate change could be useful.	Rejected. See WG2.	Edoardo Croci	Bocconi University	Italy
25931	10	1	47	16	Gender issues are almost neglected. Actually impacts of climate change and climate policies and measures especially at the urban level have relevant gender implications. An interesting work has been performed by the OECD on Gender and sustainable infrastructure in 2019.	Good point. Will follow-up on reference provided.	Edoardo Croci	Bocconi University	Italy
26609	10	4			Although probably not discussed later, the concept of energy reuse could be introduced for the first time.	Partially accepted. The existing content on reuse of energy in the urban context and energy cascading due to the concentration of urban activity will be clarified/emphasized.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
1973	10	27		27	Including additional references would strengthen the overall this section and others sections where Seto 2014 is repeated and the only reference.	Taken into account. The paragraph relates to AR5 where (Seto et al. 2014) is the correct reference.	Ann Kosmal	U.S. General Services Administration	United States of America
33661	10	30			Missing in this introductory section is an indication of city-level emissions, at a global scale, not just populations. This chapter is about mitigation (reducing current, and avoiding future emissions) so it needs a starting point. For example an update of Figure 12 in http://siteresources.worldbank.org/INTUWM/Resources/340232-1205330656272/4768406-1291309208465/PartII.pdf , or something similar, Or Figure 8.4 but with GHGs, something that gives an indication of the GHG contribution (total and per capita) of the big cities of the world. The priority for mitigation remains the fossil fuel intensive cities of the developed world – notable USA, Europe, Japan, - and China. Just from the numbers. This realism should come across. – ok, it seems Fig 8.9 is supposed to do this, but that Figure is unfortunately impossible to understand.	Agreed. Figure 8.9 is the type of figure that can act to numerically set the stage, but agreed it is difficult to understand. We are going to draft a figure based on available data that should fit this need and will ensure it is included early on in the chapter for the stage-setting purpose.	Debra Roberts	EThekwini Municipality	South Africa
33663	10	30			Is it maybe possible to separate out messages about different regions? Cities in different parts of the world have such vastly different characteristics, that global/general messages are almost meaningless unless you take into account the context. Just for example, 'a decrease in land us efficiency' or 'lock-in' or 'population trends' have vastly different meanings if you are talking about a super-dense informal city in Asia, a super-modern city in Japan or the Arab Emirates, an old city of Europe or a sprawling opulent city in America. Would it make sense to frame different subheadings in the light of these different contexts? Is there some way of categorizing cities by how much infrastructure they have per person or per square km, already, and discussing the various topics under these provisos? And what mitigation is appropriate in different contexts? The information is there, but could it be arranged more clearly so that a reader may easily find 'this type of city' and all the information pertaining to it?	we will consider a more regional organization of this section and indeed the whole chapter.	Debra Roberts	EThekwini Municipality	South Africa
37043	11	2	11	8	Nice representation of time dimension and very useful as historical perspective gets captured	Taken into account. Thank you	Joyashree Roy	Asian Institute of Technology, Thailand. Jadavpur University, India	Thailand
2281	11	4	11	4	Its better to overlay the population figure in the climate hotspot or disaster prone area of the world.	Rejected. No literature has done such overlay	Md Arfan Uzzaman	FAO	Bangladesh
33859	11				Please add a figure, similar to this, where the size indicates current (and past if available) GHG emissions. Also, projected future city-level emissions, under different scenarios, to the extent that such data are available. This is a crucial information in this chapter and guides all further discussion. The graphs in Fig 8.1 are interesting but a map would be more informativae.	Rejected. No literature available infortunately	Debra Roberts	EThekwini Municipality	South Africa
33665	12	3	12	3	The colour pallets of Figure 8.2 need to be adjusted to me the texts readable.	Editorial	Debra Roberts	EThekwini Municipality	South Africa
26065	12	10	12	14	For a few expections, the key factor determinant of decreasing urban size in the developed world (mainly Europe) are not the factors cited (out-migration, new industrial/economic dynamics), but instead, it is mainly explained by below-replacement fertility. While out-migration can have a more short-run effect on population ecline, over the long run fertility decline plays the key role.	Rejected. Unless literature backs up such statement	Alisson Barbieri	Universidade Federal de Minas Gerais (UFMG)	Brazil
12985	12	13	12	14	Shrinking urban populations offer retrofitting opportunities - debatable as less people typically implies less investment opportunities	Noted. Will add a reference.	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
29291	12	13	12	14	Shrinking populations also pose very serious challenges for the sustainability of urban areas, and when populations decline the city may not be able to respond to the challenges for the whole population, often low income/disadvantaged groups are left behind, entering a cycle of marginalisation; the example of Detroit for example, with the shrinking budgets, is an example. Some low carbon strategies of sharing and resource management have emerged, but more as coping responses than actually projected mitigation.	Noted. I see the point, but it may be more fiancial issue or development related chapter issues. It is arguable if local policy maker can create vibrancy even in the case of shrinking city if they can create low carbon urban agglomelations.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
11329	12	1	14	29	Include Cities in small islands are much smaller than sizes given 8.2. Can you include a separate category on Cities in small islands??	Noted.	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
47787	12	3			For fig. 8.2 suggest cluster each set of 2016 and 2030 bars side by side for each region to improve readability.	A good suggestion and will be better cluster the regions upon redrafting.	Martino Tran	University of British Columbia	Canada
33861	12				In this Figure it appears as if populations are staying the same between 2016 and 2030, and merely shifting to larger cities, which is misleading. Please change the units to absolute numbers and not what appears to be percentage of total.	We will explore the use of absolute numbers on this figure. One concern is that the scale extremes between regions may make the sub-divisions not possible to see, but this will be reviewed.	Debra Roberts	EThekwini Municipality	South Africa
18573	13	6	13	6	Add seventh trend: the growing consumption of land for urbanization (or rural-to-urban conversion of land). For e.g., see Page 17, line 26-30.	Rejected. addressed in multiple section of rural-urban linkages, urbanization trends	Kirti Joshi	Tribhuvan University	Nepal
47791	13	6	13	8	Suggest qualifying statement on "a lot of uncertainty in urbanization projections". Indicate over what time period, at what scale, which region. e.g. Megacity level projections in North America over the next 10 years are fairly certain; 500K - 1 million city scale projections in Asia and Africa over next 30 - 50 years uncertain, etc.	Taken into account. Will change wording, too redundant.	Martino Tran	University of British Columbia	Canada
47789	13	3			For Fig. 8.3 suggest summarize how many cities declined and total urban population change in caption or in plot. Could also break these figures up by region to convey more information.	Taken into account	Martino Tran	University of British Columbia	Canada
18483	13	8			can we bring the link to the speed and nuance of urban system change set out here-also up into the opening key statements? it would help those statements I think - and also while this section considers the declining and aging of the city the youthfulness esp of the global South and informal city needs highlighting I think because this also adds a layer of complexity to the process of mitigating (in young and poor and rapidly developing cities for example)	Noted.	Bronwyn Hayward	University of Canterbury	New Zealand
10617	14	1	14	7	Change the numbering position from back to front in the title.	Editorial	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
47793	14	2	14	7	Suggest use clustered bar charts (x-axis time intervals, 1950, 2025, 2100) and urban populations (y-axis) as functions of income, region and country. Also not clear why Switzerland is used as regional example given its relatively small spatial size and population. Why not France, Germany, Spain?	Taken into account. Figure 8.4 based on (Jiang and O'Neill 2017) relates to urban population projections under SSPs. Additional references/figures will be considered upon availability.	Martino Tran	University of British Columbia	Canada
33669	14	12	14	14	There is still about 165 million that is unaccounted for in terms of the regional distribution. This is not a small number that should be glossed over. Important to indicate where these are located.	Rejected. Paragraph already says where these are located.	Debra Roberts	EThekwini Municipality	South Africa
10619	14	15	14	15	"Informal settlements contribute very little to GHG emissions" - See comment below (No. 5)	Accepted. Will consider energy statistics, residential sector, biomass, developing countries	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
18575	14	15	14	15	Do we have enough evidence that "informal settlements contribute very little to GHG emissions"? In many cases, informal settlements have no access to electricity, resulting into the over-dependence on fossil fuels, mostly firewood. In cities like Mumbai where informal settlements account for over 40% of population, to say that informal settlements contribute very little to GHG emissions sounds too optimistic. This statement may suggest that informal settlements do not pose threat to climate change, and that the informal settlements are critical from the perspective of CC adaptation and not mitigation. Needs to rethink because the premise is important to justify the role of informal settlements as laid out in subsequent paragraphs -- particularly when we are talking about cutting off emissions in informal settlements (e.g., line 8, page 15)	Accepted. Will consider energy statistics, residential sector, biomass, developing countries	Kirti Joshi	Tribhuvan University	Nepal
18577	14	28	14	28	What are these "common features"? An explanation would be helpful.	Accepted.	Kirti Joshi	Tribhuvan University	Nepal
31317	14	10	17	7	The section of 8.2.1.1 takes 3 pages to discuss informal settlements which seems too long.	Taken into account.	YUAN GAO	Zhengzhou University	China
41597	14	11	17	7	It would be better if some of the reasons of formation of these informal settlements in urban areas can be also pointed out along with the issues relating to the drivers	Accepted.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
33667	14	10			Indeed, the points made in this section about development toward low-carbon futures are important, the opportunities for leap-frogging, etc. But this does not come through strongly in the rest of the chapter. Each section does not have a sub-section on how this could play out practically. There are many practical examples on how to mitigate in developed cities, but not how to build new cities or upgrade informal cities to avoid future emissions.	Noted but very limited literature on future cities and how to build them	Debra Roberts	EThekwini Municipality	South Africa
33863	14				Figure: can this rather be projected onto a map? Similar to Fig 8.3. That would be more instructive.	noted	Debra Roberts	EThekwini Municipality	South Africa
18579	15	5	15	6	Instead of saying "[t]he SDG 11 provides a compelling story ...", it is better to say "the SDG 11 calls for ...".	Accepted	Kirti Joshi	Tribhuvan University	Nepal
26067	15	15	15	21	It would be important that the authors cite here or in another appropriate passage in the text if there are examples in the literature of North-South compensation initiatives involving adaptation in urban forms / infrastructure.	Rejected. Unless literature is found	Alisson Barbieri	Universidade Federal de Minas Gerais (UFMG)	Brazil
31319	15	15	15	35	The second and third paragraphs have discussed about the contribution of informal urban areas to low carbon urban development and climate change mitigation separately. They are very similar and would it better to integrate these two aspects?	Rejected. Carbon urban development is a subspecies of CC mitigation	YUAN GAO	Zhengzhou University	China
1725	15	23	15	26	It is really good to see waste included in the chapter. Increasingly cities face emissions from waste (although minimal) but added up the transportation of waste avoided it is an important aspect.	Taken into account. No action required	Aarsi Sagar	Global Green Growth Institute	Republic of Korea
47795	15	23	15	38	Please clarify what electrification and enhancement of urban ecology means in this context? Please clarify what non-networked means, i.e. does this refer to a point source service distribution.	Accepted. Electrification as energy efficient cleaner fuel switch. Enhancement of urban ecology as improvement of nature-based services	Martino Tran	University of British Columbia	Canada
29097	15	43	16	4	Does the underlying literature say these technologies can be applied to the informal sector?	Noted and literature checked	Minal Pathak	Ahmedabad University	India
29293	15	1			It is generally accepted within the UN system that the New Urban Agenda is the instrument that should help in the implementation of the SDG11 (and other interrelated SDGs). While NUA was a political declaration, the implementation document was released last year. Informality is very central to the NUA and every attempt to put it in practice	Accepted. Content that relates to informality will be updated based on the NUA implementation documents.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
26611	15	29			...harnessing of renewable energy and waste heat.	Accepted. The statement "harnessing of renewable energy at city-scale" is updated to include waste energy.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
29295	15	37			There have been some arguments about the role of informality in achieving higher densities (no urban density as population per square meter) but density of activities, which would let us think to how informality achieves a more efficient use of the space	Rejected. The lack of specificity and scientific argument. We already contains sufficient discussions with evidence	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
29297	15	37			for an analysis of the environmental benefits of informal practices of waste management in Mexico City see the PhD by Louise Guibrunet: Guibrunet, L., 2017. The contribution of the informal economy to urban sustainability—case study of waste management in Tepito, Mexico City (Doctoral dissertation, UCL (University College London)).	Rejected. The Lit is grey and too personal.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
6279	16	2	16	2	The statement is not complete 'by XXXXX and enhances emissions sinks by XXXXX'	This will be filled in.	Brown Gwabene	Marian University College	United Republic of Tanzania
10623	16	2	16	2	The authors should provide emission and reduction numbers from cited references.	This will be filled in.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
37471	16	2	16	2	figures not included	This will be filled in.	Michiel Schaeffer	Climate Analytics	Netherlands
18581	16	6	16	6	Suggestion in []: The urban economy is dominated in [many cities in the developing countries] by the informal economy.	Rejected. The economic dominance of informal sectors are not limited to developing countries	Kirti Joshi	Tribhuvan University	Nepal
18583	16	16	16	16	Suggestion in []: The nature of housing in [the cities in] developing countries manifests much of urban informality.	Noted. But not necessary revision	Kirti Joshi	Tribhuvan University	Nepal
12987	16	16	16	17	Suggest to better explain why informal housing has potential to increase the use of renewable energy. What renewables are being considered? In case biomass is being considered, recall the impacts on health (particularly women's) and efficiency	Accepted. Better to explain a bit more	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
29299	16	22	16	25	This is a very important point, I would say the evidence for this is high.	Noted. No action required	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
10621	16	35	16	36	"~informal urban area~action with high impact on emission reductions" - As seen above, the authors mentioned that "informal settlements contribute very little to GHG emissions" but this sentence "~informal urban area~action with high impact on emission reductions" shows contradictory opinion. I suggest that the authors choose one between two different opinions and stick to it with strong evidence or should re-organize the paragraph if they want to maintain a balance in presentation of different opinions.	Noted. Sentenced rephrased	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
47797	16	35	16	44	The logic is not clear here. Previously it was indicated that informal urban settlements are relatively low sources of emissions; why then the urgency here for immediate action to reduce emissions. Shouldn't the focus be on improving basic access to amenities and improving well-being in these areas rather than reducing emissions?	Noted. Sentenced rephrased	Martino Tran	University of British Columbia	Canada
25109	16	40	16	41	Delete "The SR15 identifies ... (IPCC 2018)." or provide more information on the identified four big systems	Noted. Details should be added.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
25933	16	1	98	22	The structure of 8.3 could be improved starting from Spatial Planning. Instead of a list of Immediate mitigation options, these options could be articulated by sector of intervention: housing, mobility, energy, water, nature-based solutions, etc. Materials, food and waste could be kept separated under Circular economy.	noted, will consider. but page should be from p. 48	Edoardo Croci	Bocconi University	Italy
43109	16	2			Complete the missing details !!	Accepted. will add	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43111	16	16			The sentence at the beginning of the paragraph is too generic and cannot be approved. I suggest the following instead: "Much of informal housing can be found in developing countries".	noted. shall consider. better to delete. and add in the following sentence after informal housing: largely found in developing countries	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
18485	16	27			Could the leap frogging point here about avoiding lock also inform the headline statements too? This might help address my earlier anxiety about the once in a life time framing-	noted. it is headline statement and no need to change.	Bronwyn Hayward	University of Canterbury	New Zealand
47799	17	5	17	7	Again, its not clear why the focus on the potential "magnitude" of mitigation if informal areas are already low emission contributors relative to their more industrialized counterparts, or formal cities in developing regions? Perhaps there needs to be more focus in this section on the need to avoid a conventional high carbon emission economic growth trajectory combined with increasing urban populations to contextualize the potential for mitigation strategies in these areas.	rejected as this is about the issue of informal areas in developing countries.	Martino Tran	University of British Columbia	Canada
33813	17	26	17	28	The figures assigned to urban coverage will appear contradictory to readers i.e. 7.6% 1975-2015 and 0.5-0.6% in 2015. This needs to be explained.	Accepted	Debra Roberts	EThekwini Municipality	South Africa
27989	17	26	17	30	It may be of interest to point out that, between 2000 and 2009, the Beijing urban extent quadrupled and the New Delhi and Los Angeles urban extents expanded by 80% and 22.5%, respectively: Jacobson, M.Z., S.V. Nghiem, A. Sorichetta, and N. Whitney, Ring of impact from the mega-urbanization of Beijing between 2000 and 2009, J. Geophys. Res., 120, 5740-5756, doi:10.1002/2014JD023008, 2015; Jacobson, M.Z., S.V. Nghiem, A. Sorichetta, Short-term impacts of the mega-urbanizations of New Delhi and Los Angeles between 2000 and 2009, J. Geophys Res., 124, 35-56, doi:10.1029/2018JD029310, 2019	Taken into account	Mark Jacobson	Stanford University	United States of America
4993	17	9	22	22	The expansion of cities in some cases is concentrated around the metropolis increasing demographic density. In addition, urban real estate developments are favored, which increases the occupation of river flood plains, increasing water risk. These occupations generate late restrictive public policies.	Rejected. Missing reference	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
2279	17	10	22	20	The author can assess this paper for section 8.2.2: Arfanuzzaman, M. and Dahiya, B. 2019. Sustainable Urbanization in Southeast Asia and Beyond: Challenges of Population Growth, Land Use Change and Environmental Health, Journal of Growth and Change, vol. 50 (2), doi:10.1111/grow.12297	Rejected. Self referencing Col	Md Arfan Uzzaman	FAO	Bangladesh
20251	17		22		C40, Global Climate Leadership Group, is composed of 96 cities of more than 700 million citizens and comprising 25% of the world economy. C40 was established to facilitate communication among cities to solve the climate change issue and progress toward sustainable development with the connectivity among node cities for shared objectives, flexible innovative procurement system, and scalable potential as a center of knowledge and technology production. However, C40 was not mentioned in this Chapter. Should it be any content related to C40 as well as its measures to tackle climate change?	Rejected. C40 cited in section 8.2.5, page 37 line 25	Thi Lan Huong Huynh	Viet Nam Institute of Meteorology, Hydrology and Climate change	Vietnam
25609	17	6			rom should be from	Accepted	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
41599	19	1	19	2	The "Figure 8.6 Regional variations in spatial patterns of urban growth." is so unclear also needs to find a better way to present this	Accepted	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
19517	19	1	19	10	Is Figure 8.6 necessary? What kind of information would be added in addition to that of Figure 8.5?	Accepted	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19519	19	17	19	18	The tendency of India shown in Figure 8.6 is much different from that of China. Why can the authors say that "India and China represent the most inefficient trends in urban land use (Figure 8.6)."?	Accepted	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
34821	19		19		Figure 8.6 "Regional variations in spatial patterns of urban growth" is not very clear. In addition, the relationship among the cities seems meaningless. I will suggest, if the author(s) could use line graph instead.	Accepted	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
37473	19		19		Figure 8.6 is extremely hard to read/discern what it is trying to convey. Font is too small to discern the cities.	Accepted	Michiel Schaeffer	Climate Analytics	Netherlands
11331	19	1	20	10	figure 8.6 and 8.7 include Cities in small islands as well,	Accepted	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
33671	19	24		24	This discussion is not clear and helpful. Fig 8.6 is impossible to understand, but Fig 8.7 seems to show very high land utilization (in terms of population density) in India and Africa, and low utilization in North America, other regions intermediate. In North America, Europe, India and China density is coming down steeply, in other regions it is a bit up and down. Now the starting point also matters. India and China have come down from very high density to nearer the European range, but still well above the N American range. This is what seems to be conveyed in Fig 8.7. Is utilization not equivalent to efficiency? The more land you use to accommodate a certain population, the less efficient you are, right? So the message in Figure is not what this paragraph says. Please revisit.	Accepted	Debra Roberts	EThekwini Municipality	South Africa
17415	19				Figure 8.6 is not clear	Accepted	Zeyaeyan Sadegh	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
33865	19				Figure 8.6 is very difficult to understand and needs a very clear legend. For example: "xxx number of cities are represented by a short line each, showing upward and outward growth trend over approximately a decade. The x-axis..."; "The starting point (not 'tail' – the arrows are too tiny to see) is at ..."; It is not clear why one city has multiple lines? What does each line represent? Please take the reader carefully through each aspect of this figure. What exactly do the colours mean? What is the difference between "budding outward" and "outward". Also it is not clear what is the contribution of this figure that is not said yet in the previous figure?	Accepted	Debra Roberts	EThekwini Municipality	South Africa
41601	20	1	20	2	The tree figures presented "Figure 8.7 Urban population density by region and by decade." needs better clarity and also need to find a better way to present the findings	Noted	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
34585	20	3	20	3	Figure 8.6 almost cant be read, especially the arrows	Editorial	Ova Candra Dewi	Universitas Indonesia	Indonesia
34823	20		20		Figure 8.7 Urban population density by region and by decade	Editorial	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
34825	20		20		requires editing. The colors used for the population sentences per country is highly obscured.	Editorial	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
33867	20				Figure 8.7 is nearly impossible to understand.	Noted	Debra Roberts	EThekwini Municipality	South Africa
26069	21	2	21	2	The authors emphasize evidences of urban expansion / sprawl ver agricultural lands, but evidences from developing worlds suggest that urban expansion may occur over forested areas with consequent loss of biodiversity and ecosystem services. It may be useful to explore and cite examples here.	Good point. Should revise to include urban expansion into forested areas--there is a growing literature on the urban-wildland interface.	Alisson Barbieri	Universidade Federal de Minas Gerais (UFMG)	Brazil
25111	21	16	21	16	Delete "around"	Noted. Thank you	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
45813	21	17	21	19	This paragraph hangs, it is not quite clear it needs more clarification, is there a relation to urban sprawl?	Agreed. Will delete or shift to elsewhere.	Sabrina Dekker	Dublin City University	Ireland
10625	21	21	21	21	I would like to suggest that the authors choose one of "CO2 e, CO2 eq., CO2 equivalent" and keep the same unit in Chapter 8.	We will standardize the use of CO2 equivalent abbreviation.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
12525	21	28	21	28	Please, add the following sentence after "...built environment...": "It should be mentioned that the transition to bio-based building materials cannot be able in dry climate areas such as southwestern United States and northern Mexico; Argentina; north Africa; south Africa; south Europe; central part of Australia; Western North America (Great Basin, Columbia Plateau, Great Plains); Eurasian interior, from steppes of eastern Europe to the Gobi Desert and North China. Only areas with a humid climate with forests would perform such transition. Only, this could be possible in areas where the availability of timber is high. In addition, it should be taken into account that fire risk is increased with associated the social (lower durability than reinforced concrete buildings), economic (high cost) and environmental (carbon dioxide, organic among other emissions) consequences (The Building Research Establishment 2008; (The Fire Protection Association 2011). The Building Research Establishment, BRE 2008. DIG 208 Increasing the fire resistance of existing timber floors. IHS BRE Press. The Capitol Building. Bracknell. RG12 8FZ.UK. ISBN 0851253598. http://cfpa-e.eu/wp-content/uploads/2019/06/Article-2-from-Jim-G.pdf BRE 2008 https://www.thenbs.com/PublicationIndex/documents/details?Pub=BRE&DocID=14527 The Fire Protection Association, 2011. Design and Management Fire in timber frame buildings. A review of fire statistics from the UK and the USA. BDM14, First published 2011. Version 01. 2011 © The Fire Protection Association on behalf of RISC Authority. Fire Protection Association London Road, Moreton in Marsh Gloucestershire GL56 0RH, UK.	This is an important point, but there is no line 28 in the 1/20/2020 draft. The suggestion for the addition would be more appropriate in a section where the use of wood is highlighted as a construction material.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
37475	21		21		Inclusion of "other" does not add much here given the quantities involved, and especially given it is not explained. Makes the graph quite crowded.	agreed. This figure will be redrafted with a number of improvements including either removing or explaining the "other" category	Michiel Schaeffer	Climate Analytics	Netherlands
33673	21	21			Re: 20% of global emissions – In the light of p24, L18-31 this 20% is not very meaningful. Total carbon footprint and therefore the potential reductions by changing the way people live in cities is very much higher – more in the region of 70%. It will also be useful to see a careful break-down of where the emissions in cities come from (a total consumption based life-cycle analysis and not just power and fuel). Consumption and wastefulness is very high in cities, and this is not reflected in that "20%". These are issues that can and should be addressed. – ok Section 8.2.4 picks up on this. Perhaps these sections could be better integrated, and cross-reference. Currently they come across as contradictory.	These two sections will be harmonized - the 20% refers to a sub-portion of the total urban share and this was not well described. This will be fixed.	Debra Roberts	EThekwini Municipality	South Africa
33869	21				Figure: please change units to km2. One needs to see how much land in total is being lost in different regions. Percent is not useful without knowing what it is a percentage of.	This figure will be redrafted given the multiple comments and the use of absolute values versus percentages will be considered.	Debra Roberts	EThekwini Municipality	South Africa
18585	22	4	22	4	Replace "natural disasters" by "disasters". Disasters are not natural, hazards are.	agreed. Changed to just "disasters"	Kirti Joshi	Tribhuvan University	Nepal

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44421	22	4	22	10	The term natural disaster does not have academic support, rather the term should be just disaster. If the triggering event needs to be identified then it is recommendable disaster triggered by a natural hazard. All disasters are social, as exposure and vulnerability are the ultimate causes of disaster. Quarantelli, E. L. (1985): «What Is Disaster? The Need for Clarification in Definition and Conceptualization in Research», en Disasters and Mental Health: Selected Contemporary Perspectives. U.S. Department of Health and Human Services, National Institute of Mental Health, pp. 41-73. Quarantelli, E. L. (1998): What is a Disaster? London, Routledge.	agreed. Changed to just "disasters"	Urbano Fra Paleo	University of Extremadura	Spain
10627	22	9	22	9	Provide citation.	This citation will be added	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
18587	22	10	22	10	Replace "natural disasters" by "disasters". Disasters are not natural, hazards are.	agreed. Changed to just "disasters"	Kirti Joshi	Tribhuvan University	Nepal
12989	22	15	22	18	Suggest to review this sentence - as interpretation is dangerous. Even though there are always factors beyond cities' control, there are always related ones that are of local sphere - e.g. even though electric battery pricing and development is beyond the urban scale, mobility plans and modal shift policies are not.	we hoped that the use of "some" would qualify this and the sentence after the one noted gives an example of where local power can confront lock-in. However, this text will be improved to make this point both more obvious and point out the enforcement challenge raised by the reviewer.	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
45815	22	18	22	22	Do urban governments have powers to set building codes? I think it is more rare than is suggested by the text. There is a difference between setting and enforcing. They perhaps can influence planning systems and building regulations. There is politics involved	This sentence was uncited in the FOD - in the process of including a citation we will review how extensive this building code control is globally and attempt to accurately reflect both the extent of this control and recognize the challenges of enforcement even if codes exist.	Sabrina Dekker	Dublin City University	Ireland
34587	22	19	22	22	need additional information: many evaluation tools/software are now available to support/assist the work. This shouldn't be as complicated as in the previous time (to balance other sub topics discussion)	Noted	Ova Candra Dewi	Universitas Indonesia	Indonesia
10629	22	22	22	22	Provide citation.	This citation will be added	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
31321	22	25	22	46	The paragraph provides a case study which can be simplified rather than providing too much details.	Accepted. Content and referral to California's Energy Commission will be generalized.	YUAN GAO	Zhengzhou University	China
33675	22	24	23	39	The bulk of the text in these sections is on two cases. It is recommended that the authors consider converting those sections into chapter boxes which will afford an opportunity to further unpack the cases.	Accepted. Chapter boxes will be considered with diversification of case studies.	Debra Roberts	EThekweni Municipality	South Africa
31323	22	25	23	39	The previous sections have emphasized Global South and informal settlements. Why so many American case studies? It will be more supportive with different examples and data for section 8.2.3.1.	Accepted. The related section revised to generalize the content with a more diverse representation.	YUAN GAO	Zhengzhou University	China
41603	22	24	24	12	This section doesnt provide clear thoughts. The issues for Multi-Scalar Nature of Urban Infrastructures and Carbon Lock-in can be better explained/written in a clearer manner.	Accepted. The text is revised and restructured, considering this point and updated in the SOD.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
43115	22	45			I think the abbreviation and the expression are written wrongly, I suggest Net Zero Energy (NZE) in stead.	Taken into account. It is Zero Net Energy (ZNE) in the Californian context while the referral will be generalized.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43113	22				References are missing in the page.	Addressed. All references and placeholders are updated in the SOD.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
25611	23	1	23	3	How do you justify this claim? Where is the science/numbers that show its "instrumental" role? What per cent of buildings are LEED certified?	Accepted. The text is revised and restructured, considering this point and updated in the SOD.	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
1981	23	19	23	40	For additional citations see key message 2 failing urban infrastructure, See Maxwell, K., S. Julius, A. Grambsch, A. Kosmal, L. Larson, and N. Sonti, 2018: Built Environment, Urban Systems, and Cities. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 438–478. doi: 10.7930/NCA4.2018.CH11	Noted. Discuss with the author to add the papers to the reference.	Ann Kosmal	U.S. General Services Administration	United States of America
10631	23	24	23	24	I would like to suggest that the authors give at least brief information on levels rather than just show D+ representing barely passing.	Editorial	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
34589	23	41	24	12	Sub Chapter 8.2.3.2 quite common, it needs more back up information to convince the readers	Noted. Will discuss with authors	Ova Candra Dewi	Universitas Indonesia	Indonesia
37045	23	41	24	12	What are these replicable changes happening and what is driving in Urbanising India can be found in following references. Also, how urban mitigation intervention how they need to be pro-poor is also discussed. Also some of these are relevant for 8.2.4.3. Colenbrander Sarah, Andy Gouldson, Joyashree Roy, Niall Kerr, Sayantan Sarkar, Stephen Hall, Andrew Sudmant, Amrita Ghatak, Debalina Chakravarty, Diya Ganguly and Faye McAnulla (2016). Can low-carbon urban development be pro-poor? The case of Kolkata, India, Environment and Urbanization, pp 1–20. DOI: 10.1177/0956247816677775. ISSN · 0956-2478 (print) 1746-0301 (web) , Roy, Joyashree, D. Chakravarty, S. Dasgupta, D Chakraborty, S. Pal, D.Ghosh. (2018) Where is the hope? Blending modern urban lifestyle with cultural practices in India, Current Opinion in Environmental Sustainability 2018, 31:96–103,https://doi.org/10.1016/j.cosust.2018.01.010.	Noted. Will discuss with authors	Joyashree Roy	Asian Institute of Technology, Thailand. Jadavpur University, India	Thailand
43117	23	5			Please modify it to;"Europe, Africa and Aisa."	Editorial	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43105	23	45			Add the following reference with the two references at the end of sentence; https://doi.org/10.1016/j.enbuild.2017.08.008	Taken into account. The reference "On the green adaptation of urban developments in Egypt; predicting community future energy efficiency using coupled outdoor-indoor simulations" is considered for related content in the chapter not necessarily limited to this section.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt

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25613	24	16	24	31	How is LUCCLUF incorporated here? 75% of what exactly?	Noted. Will discuss with authors	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
1477	24	19	24	19	There is another example regarding the relationship between urban expansion and the GHG emissions. Liu et al., (2019) found that the rapid urban expansion in the past decade has in turn reduced global terrestrial NPP, with a net loss of 22.4 Tg Carbon per year (Tg C per year), which offsetted 30% of the climate-driven increase (73.6 Tg C per year) over the same period. ("Liu X., Pei F, Wen Y., Li X., et al. (2019) Global urban expansion offsets climate-driven increases in terrestrial net primary productivity. Nature Communications. 10:5558 https://doi.org/10.1038/s41467-019-13462-1)	Noted. Will add the references.	JUNGUO LIU	Southern University of Science and Technology	China
25935	24	14	28	5	The section on the Drivers of urban GHG emissions should be expanded considering recent literature and merged with 8.2.4.3. See: Croci E, Lucchitta B, Greet Janssens-Maenhout, Molteni T, Martelli S (2017), Urban CO2 mitigation strategies under the Covenant of Mayors: An assessment of 124 European cities, JOURNAL OF CLEANER PRODUCTION, n. 169, pp. 161-177, ISSN: 0959-6526, doi.org/10.1016/j.jclepro.2017.05.165	Noted. Will add the references.	Edoardo Croci	Bocconi University	Italy
31325	24	15	37	10	The subtitles fro, 8.2.4.1-8.2.4.8 have not been shown in table of content.	Editorial	YUAN GAO	Zhengzhou University	China
31327	24	15			For section 8.2.4, would it be better to have a table summarizing all drivers and references for easier and better understanding?	Editorial	YUAN GAO	Zhengzhou University	China
31329	24	15			For section 8.2.4.1, would it be better to provide more data regarding the global status and differences amongst different regions such as developed or developing regions, especially in Global South or informal urban areas which have been emphasized in previous sections?	Editorial	YUAN GAO	Zhengzhou University	China
10633	25	1	25	7	Provide information on "zone j" and shading area ①~④.	Editorial	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
19521	25	1	25	13	The explanation of the Figure 8.9 is insufficient. There is no explanation for the numbers in the figure, colors, or y-axis in the right-hand side of the figure.	Editorial	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
10635	25	26	25	27	I do not think that all Non-Annex I country located in cites show this trend. I suggest that the authors should give some examples of Non-Annex I countries with strong evidence.	Noted. Will check	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
26801	25	14	26	28	The section "Identities and other relationships" only discusses the Kaya identity. This section should include discussion of other other dimensions of social and cultural identity, and social relationships that affect carbon usage. Alternatively, retittle this section "Kaya identity" but still incorporate social science analysis of identity and relationships elsewhere in the chapter.	Rejected. Kaya is the main CC mitigation identity. Other functions were presented on next page.	Keely Maxwell	U.S. Environmental Protection Agency	United States of America
2645	25	15	26	12	Size of settlements, continued Probably this optimal range will stay well below 500000 inhabitants. If literature concerning this issue exists, discussing it would be welcome; alternatively, noting that the knowledge is missing. This is not an academic exercise. The statements on lines page 66 Lines 26-28 apply for city sizes.	Accepted. Note that knowledge is missing	Philippe Waldteufel	CNRS/IPSL/LATMOS	France
31331	25	14	28	4	The first paragraph of section 8.2.4.2 provides a detailed example. Would it be better to simply show the drivers of urban emissions?	Rejected. Details are important for readers to understand	YUAN GAO	Zhengzhou University	China
33871	25				Fig 8.9 is impossible to understand. It seems that this is information on emissions for a large number of urban centres? This should be displayed on a map, similar to Fig 8.1. That would be useful. What is CF? Carbon footprint? Please keep figures clear of acronyms. How exactly is it measured? Emissions per person? Total emissions? Emissions per km^2?	Noted. Discuss with LAs.	Debra Roberts	EThekwini Municipality	South Africa
47801	26	11	26	21	Does the counteracted with urban heat island effect refer to more cooling is required, which can result in more emissions? i.e. UHI is not a source of emissions by itself. Also, is there a reference for this? Please clarify what does an output value of per unit traffic turnover mean? Please clarify what energy structure means and causal relationship to inhibiting carbon emissions.	Accepted. Additional references will be streamlined into the related content. In the reference Fan and Lei (2016), "output value of per unit traffic turnover" is defined based on E/GDPtr while technical terms will also be simplified.	Martino Tran	University of British Columbia	Canada
33677	26	57			Consumerism: One of the most important sources of emissions in cities especially is consumerism. As far as can be seen there is no dedicated section to this important aspect, which bridges energy, industry, transport, waste, etc and contains psychological components of identity, aspirations, behaviour, as well as media and advertising, policies around this, etc etc. What can governments do to reduce consumerism and general wastefulness in 'more-more throw-away' societies? This is a particular issue in cities. If this comes up in another chapter, it would be important to cross-reference. The difference between industrialized and non-industrialized areas and countries is extreme. Can over-consumption be contained and reduced? This should also be picked up in Table 8.4	Taken into account. Chapter 5 on "Demand, services and social aspects of mitigation" addresses demand-side mitigation strategies based on "avoid, shift and improve" and referral will be harmonized with urban area based opportunities.	Debra Roberts	EThekwini Municipality	South Africa
10637	27	1	3	27	Provide title and explanation of Fig. (a) and (b)	Taken into account. There are two separate figures (Figure 8.10 and Figure 8.11) without insets a) and b) while the inclusion of related figures may be updated.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
19523	27	2	27	2	Lack of the explanation for (a) and (b)	Taken into account. There are two separate figures (Figure 8.10 and Figure 8.11) without insets a) and b) while the inclusion of related figures may be updated.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
10639	28	14	15	28	The authors should give some examples or modify the whole sentence. Because infrastructure such as zero carbon buildings or applied low carbon materials and technologies has been already developed in some Asian countries.	This will be rephrased. The intent was not to suggest that there is no development of improved building infrastructure but that there is potential for it to be applied in Asia where infrastructure growth is projected to be large.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
1503	28	1	28	4	I prefer the legend "other" is put at the end of other legends	Yes, this can be redrafted as suggested.	JUNGUO LIU	Southern University of Science and Technology	China
47783	28	21	28	21	The recent series of fast virus outbreaks underlines the necessity to fully reconsider our urban systems and their interaction with their environment, including their impacts on the habitats of many species.	In general, the impact of COVID will be considered vis a vis urban emissions and mitigation - it is not certain what form that will take (a supplemental box).	Daniel Schertzer	Ecole des Ponts ParisTech,	France
33679	28	26	28	30	Changes in individual behaviour can be enabled / constrained by several external factors. In many cities in developing economies that are characterised by poor infrastructure and public transport system, for instance, the decision to change the mode of transport is constrained by the non-availability / inefficiency of this option.	Yes, this will be acknowledged included both where and in other places to avoid the generality that individual choice is unconstrained.	Debra Roberts	EThekwini Municipality	South Africa
31333	28	6	31	15	Would it be better to summarize the extent of each contributor to the change of daily travel behaviour?	Partially agreed- we will add a sentence on the impact of transportation behavior to GHG emission.	YUAN GAO	Zhengzhou University	China
47765	29	1	29	1	Vicari, R. et al. (2019) 'Climate resilience in Paris: A network representation of online strategic documents released by public authorities', Progress in Disaster Science, 3(2019), p. 100040. doi: 10.1016/j.pdisas.2019.100040.	Rejected- not central to the discussion.	Daniel Schertzer	Ecole des Ponts ParisTech,	France
45817	29	18	29	18	I like "Parental Chauffer"	Thank you.	Sabrina Dekker	Dublin City University	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
37477	29	44	30	3	If using exact figure, perhaps add "up to" where it is not currently used (e.g. line 44, line 3)	Yes, this is a good suggestion.	Michiel Schaeffer	Climate Analytics	Netherlands
18481	29	19			There are only 2 mentions of children in the whole chapter (and see below elderly only 1) and one of these here is in this context car sharing- there are many opportunities for community development and wellbeing synergies in mitigation from walking school buses in global north or public transport policies like London's free for the under 12 yrs policy to innovations for mitigation with youth in informal cities that have synergies & can accelerate community level mitigation behaviour that could be useful to mention to strengthen this point Lawson, D.F., Stevenson, K.T., Peterson, M.N. et al. Children can foster climate change concern among their parents. Nat. Clim. Chang. 9, 458–462 (2019). https://doi.org/10.1038/s41558-019-0463-3 - given urban areas are youthful places (as well as aging cities they are places for and of youth) discussing this even briefly and thinking about the intersection of age and mitigation in policy development and policy uptake is helpful see for example George C. Nche, Hilary C. Achunike & Anuli B. Okoli (2019) From climate change victims to climate change actors: The role of eco-parenting in building mitigation and adaptation capacities in children, The Journal of Environmental Education, 50:2, 131-144, DOI: 10.1080/00958964.2018.1553839 Then there are other synergies eg health benefits for children and elderly of mitigation https://doi.org/10.1016/j.envres.2018.12.016	This is an important point, mitigation impacts and responses from the standpoint of children and the elderly, more susceptible populations to climate change.	Bronwyn Hayward	University of Canterbury	New Zealand
44215	30	9	30	21	A reference to Chapter 9 shall be added as there is more details information on what presented here. A good description of the policy packages for the building sector adopted in the EU is available at: Chapter 2 - Policies, Recommendations and Standards (International Technical Standards, Main Laws and Regulations; EU Directives; Energy Labeling), Editor(s): Francesco Asdrubali, Umberto Desideri, Handbook of Energy Efficiency in Buildings, Butterworth-Heinemann, 2019, Pages 5-73, ISBN 9780128128176, https://doi.org/10.1016/B978-0-12-812817-6.00002-4 . (http://www.sciencedirect.com/science/article/pii/B9780128128176000024)	Good point to add a reference to Chapter 9 in this discussion.	BERTOLDI PAOLO	European Commission	Italy
37479	30	19	30	20	Mention of barrier to behaviour change being lack of ownership of property could be supplemented by mention of schemes to target landlord behaviour	Good point to add a reference to policies that target landlords.	Michiel Schaeffer	Climate Analytics	Netherlands
44217	30	28	30	30	the concept of "Sufficiency" could be introduced here. See Chapter 9 or add the following reference: Paolo Bertoldi, Are current energy efficiency policies promoting a change in behaviour, conservation and sufficiency in line with the Paris Agreement? Review of existing policies and recommendations for new and effective policies, 2020 (forcoming in Energy Policy).	Will need to review the article referenced and see how it could be incorporated.	BERTOLDI PAOLO	European Commission	Italy
19525	30	36	30	36	is "which general generally," OK?	Eliminate "general"	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
25113	30	36	30	36	Delete "general"	Same as comment above.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
37481	30	44	30	44	Mention of social norms could be strengthened here by explicit discussion of research regarding tracking neighbours energy usage: https://www.theguardian.com/big-energy-debate/2014/sep/11/neighbours-bills-cut-consumption	Don't think we can use newspapers as a source, but there are some studies we can reference on this, e.g., Wynes et al. 2018	Michiel Schaeffer	Climate Analytics	Netherlands
33681	30	44			... and knowledge.	That's right. I'm sure there is literature on how knowledge affects decisions.	Debra Roberts	EThekwini Municipality	South Africa
44219	31	7	31	15	The effectiveness and the range of energy savings resulting from energy consumption feedback systems based on different media has been assessed on the following paper: Zangheri, P.; Serrenho, T.; Bertoldi, P. Energy Savings from Feedback Systems: A Meta-Studies' Review. Energies 2019, 12, 3788. (available at https://www.mdpi.com/1996-1073/12/19/3788/htm). It is recommended to cite it.	We can review and add the reference as appropriate.	BERTOLDI PAOLO	European Commission	Italy
31335	31	33	31	45	does the section of 8.2.4.5 need to be properly developed?	noted and actions will be taken to further develop the sub section: integrate into 8.2.4.3	YUAN GAO	Zhengzhou University	China
25115	31	39	31	39	Delete "The nexus between energy efficiency and renewables." as these are complementary approaches and not substitutes	accepted. delete the sentence	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
47803	31	33			Suggest integrate into section 8.2.4.5 into 8.2.4.3 or delete.	partially accepted: integrate into 8.2.4.3	Martino Tran	University of British Columbia	Canada
43121	31				In section 8.2.4.4. after the first para, add: "a study published in Atmosphere journal argued that Drone Assisted Retrofitting (DAR) can be provide areal thermography in developing countries to support the application of both urban and building passive design strategies that reduce heat gain and hence reduce the energy consumption and carbon emissions, (Fahmy et al., 2020). By this way; building envelope cladding, envelope flexible PV systems along with urban vegetation can be applied at thermally stressed surfaces and urban canyons.". Ref.; https://doi.org/10.3390/atmos11030236 .	rejected as this is about urban form.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
17417	32	7	33	16	what are scopes 1 and 2 in fig 8.13? It is necessary to explain.	The discussion of the scopes will be included in revised text so that the relationship between the scopes and different accounting frameworks is explained	Zeyaeyan Sadegh	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
33683	32	2			The section is very technical, and not very understandable to a non-specialist.	Writing and explanation will be improved to be more readable to the non-specialist	Debra Roberts	EThekwini Municipality	South Africa
19527	33	1	33	2	Why is Scope 1 not transformed to Scope 3 (blue) inside the City j? The dwellers in City j may consume the products in the City j.	good observation. This will be added to the figure.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
11333	33	1	33	6	Figure 8.13 would be good to give an example from small islands as well	Noted	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
12991	33	8	33	8	TE acronym needs full description (territorial emissions) as it is the first time it appears	This will be corrected.	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France

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44221	33	22	33	27	It is recommended to cite the following paper giving a review of GHG emission accounting mechanisms in cities and introducing the GCoM Common Reporting Framework: Paolo Bertoldi, Albana Kona, Silvia Rivas, Jean François Dallemand, Towards a global comprehensive and transparent framework for cities and local governments enabling an effective contribution to the Paris climate agreement, Current Opinion in Environmental Sustainability, Volume 30, 2018, Pages 67-74, ISSN 1877-3435, https://doi.org/10.1016/j.cosust.2018.03.009 . (http://www.sciencedirect.com/science/article/pii/S1877343517301288)	This citation will be incorporated in the chapter. Thank you.	BERTOLDI PAOLO	European Commission	Italy
33873	33	1		18	Can this figure be integrated with Figure 8.1? This figure is difficult to understand and would need quite a more detailed legend explaining what each part means, rather than defining acronyms. Spell out acronyms in figure, that helps interpret the figure. The following paragraph would also be more readable with less acronyms. Different carbon accounting systems seem like an important message, please use plain language.	agreed. This section and the figure will be better explained and more readable in next draft.	Debra Roberts	EThekwini Municipality	South Africa
47805	33	3			For fig. 8.14 Define scope 1 and 2 in legend.	Agreed. See comment ID 17417	Martino Tran	University of British Columbia	Canada
34591	34	10	34	10	what is this? Is it a note? "Accounting system...", there is no similar format	This should have been sub-headed - that will be done	Ova Candra Dewi	Universitas Indonesia	Indonesia
12993	34	33	34	38	As a bottom-up method, I would add the relevance of national household surveys covering energy end use patterns (even if not with a yearly frequency), which usually have good representativeness in urban areas. Then consumption can be interpolated for the years not covered by a variety of methods. It is also relevant to align energy and GHG reporting.	yes, survey data will be included in the examples of data approaches	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
33685	34	11		25	There are too many acronyms to make this paragraph readable.	Agreed. We will write out the acronyms and/or reduce their number.	Debra Roberts	EThekwini Municipality	South Africa
19529	35	5	35	17	Recently novel technology using O2: CO2 concentrations and CO2 flux at tower observation to estimate sectorial sources burning fossil fuels in urban area has been developed. (e.g. Ishidoya et al. 2019, https://www.atmos-chem-phys-discuss.net/acp-2019-652/ , in revision)	Thank you. This reference will be reviewed for inclusion in this section.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
16307	35	28			In Section 8.2.4.7 Urban-rural linkages, consider adding a description of how this linkage is the main driver for war, with the implication that sustainable cities will also diminish war globally due to reduction of resource pressures on rural environments.	Rejected	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
27991	37	13	37	14	IPCC states, "There remains little globally comprehensive literature on projections of future baseline GHG emissions from urban areas or relative scenarios deploying mitigation actions." However, the following paper both projects future CO2 emissions to 2050 and provides specific mitigation scenarios for 53 individual towns and cities: Jacobson, M.Z., M.A. Cameron, E.M. Hennessy, I. Petkov, C.B. Meyer, T.K. Gambhir, A.T. Maki, K. Pflieger, H. Clonts, A.L. McEvoy, M.L. Miccioli, A.-K. von Krauland, R.W. Fang, and M.A. Delucchi, 100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for 53 towns and cities in North America, Sustainable Cities and Society, 42, 22-37, doi:10.1016/j.scs.2018.06.031, 2018.	Thank you. This reference will be reviewed for inclusion in this section.	Mark Jacobson	Stanford University	United States of America
31337	37	10			The section 8.2.4.8 needs to be properly developed.	Agreed. Will be done in next draft.	YUAN GAO	Zhengzhou University	China
14233	38	1	38	2	Legend of Fig. 8.16 is incomplete. There are shades of colours not referenced or not detailed if they represents subcategories	The legend of this figure will be revised to be clear on the sub-shaded portions of the color scheme.	Estela Santalla	Facultad de Ingeniería UNICEN www.fio.unicen.edu.ar	Argentina
10641	38	1	38	4	I would like to suggest that the authors explain more about differences between reference and mitigation potential(dashed line) such as 17.3 t GHG emissions in reference condition but with decarbonization of electricity supply by -15.5 t in order to have better understand the graph as well as emphasize the importance of decarbonization of electricity supply.	Agreed. The decarbonization of electricity supply was difficult to see given the quality of the figure. Further information will be included in the text to better describe the analysis behind figure 8.16	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
19531	38	5	38	12	Information is too little to understand the reason why the mitigation potential at present and 2050 are so big. More explanation is required for Figure 8.17.	The figure caption and text will be improved to better describe the contents of this analysis.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
10643	38	7	38	7	Insert "Figure. 8.17" in the end of sentence.	This will be done.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
47807	39	21			Regarding Fig. 8.18 at outset of report, it is indicated that cities are responsible for ~70% of global carbon emissions, but looking at urban carbon plots (8.16, 8.17) relative to global carbon emissions (plot 8.18) implies urban carbon emissions are around 30 - 40% of total? i.e. From a 2015 baseline urban carbon ~15 - 20 GtCO2/global carbon ~50 GtCO2 = 30 - 40%.	Figures 8.16 and 8.17 are subsets of the total urban emissions (primarily just the buildings and transport components) and hence are smaller than the ~70% of the 50 GtCO2e. This distinction will be better clarified in the SOD.	Martino Tran	University of British Columbia	Canada
25117	40	15	40	24	Elaboration is needed on how the third narrative is developed in the context of sustainable development	Accepted. The third narrative relates to urban transformation while co-benefits for sustainable development will be better emphasized beyond the existing statement in lines 16-18 (page 41).	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
47809	40	6			Regarding section 8.2.5.1 while I can appreciate the broader context this section provides, it's not clear how much it adds to the overall discussion and evidence base for urban mitigation potential. Could potentially remove and go straight into section 8.2.5.2. which seems like a natural follow on from the mitigation wedges.	Taken into account. The related content will be used to further synthesize information while strengthening the urban narratives.	Martino Tran	University of British Columbia	Canada
10645	41	11	41	12	I do think that it depends on the levels of development in urban area. References were not even provided for this sentence. I suggest the authors modify the sentence.	Taken into account. The related reference (Murakami and Yamagata 2019) from Figure 8.21 will be better integrated into the text.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
44223	41	21	41	23	This very important sentence is not clear, please rephrase it, it is not clear what does means "better balanced and more efficient". It the gap too big or too small? It is increasing or there is some convergence. Could also include the GHG emissions per capita.	Accepted. The current evidence is based on (Kennedy et al. 2015) while the future outlook will be supported by additional references.	BERTOLDI PAOLO	European Commission	Italy
33687	41	7		20	Is this paragraph applicable to both developed and developing contexts? If not, what would it look like in developing context? The text seems to cover both but the figure seems to depict a starting point of high emissions.	Accepted. Figure 8.20 relates to the global urban context while the peaking of emissions will be different across development contexts, which will be clarified.	Debra Roberts	EThekwini Municipality	South Africa

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26613	41	13			include 'utilisation of waste heat'.	Accepted for consistency since related content is represented in the chapter, e.g. "waste heat and renewable energy in urban areas" line 19 (page 58).	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
33689	41	21		23	It would be very interesting to see the details of these factors depicted graphically, the data are available. How much city waste is produced in different countries for example. Some European countries have fantastic recycling rates, but recycling is a last resort and it would be better if they just reduced their astronomical consumption and waste production.	Accepted. Related data from (Kennedy et al. 2015) and/or synthesis from different sources will be integrated.	Debra Roberts	EThekwini Municipality	South Africa
33875	42				Figure does not seem to be adding useful information to discussion. Or else, it is not clear what. Also the differences between the three scenarios are not very evident. So if this is important, then the display needs to be improved somehow.	Accepted. The integration of the content of Figure 8.21 based on (Murakami and Yamagata 2019) will be improved.	Debra Roberts	EThekwini Municipality	South Africa
44225	43	2	43	2	Is this the data from the GCoM?	Noted, clarified in the text	BERTOLDI PAOLO	European Commission	Italy
33691	43	2	43	9	Why are some regions missing (Western Europe, North America...)	Noted, clarified in the text	Debra Roberts	EThekwini Municipality	South Africa
5837	43	16	43	17	Another research studied the relationship between urban size and CO2 emission efficiency by examining the urban agglomeration in the Yangtze River Delta in China, and proposed that urban size has a negative correlation to carbon emissions, suggesting urban agglomeration is more emission efficient (Yu et al., 2020).	Noted. Relevant paper. Can be added. https://doi.org/10.1016/j.jenvman.2019.110061	Xiang Yu	Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences	China
33693	43	19	43	19	Figure 8.22 does not provide a useful base for comparison. What is the rationale for coming to Africa and the Middle East or Eastern Europe and West-Central Asia? Also, why are developing countries missing but there are developed countries? Ideally, the figure should present regional information and avoid merging different region and both developed and developing countries should be included.	Noted, clarified in the text	Debra Roberts	EThekwini Municipality	South Africa
44227	43	26	43	29	As already indicated in another comment the GCoM has published in 2019 a new Aggregation report with more recent data. Available at https://www.globalcovenantofmayors.org/impact2019/	Noted, clarified in the text	BERTOLDI PAOLO	European Commission	Italy
5835	43	16			Another research studied the relationship between urban size and CO2 emission efficiency by examining the urban agglomeration in the Yangtze River Delta in China, and proposed that urban size has a negative correlation to carbon emissions, suggesting urban agglomeration is more emission efficient (Yu et al., 2020).	Same comment as above. The paper can be added.	Xiang Yu	Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences	China
11335	44	1	44	4	Figure 8.23 Please include Small islands example as well	Noted, clarified in the text	Mahmood Riyaz	Maldivian Coral Reef Society	Maldives
13109	44	7	45	21	I would suggest to also discuss about the alternative eco-materials, beside the classical construction materials cited in the text (i.e. steel, concrete, xwood). Many ongoing research is done to produce construction material using local clay-rich soils, eventually mixed with vegetal residues (i.e., compressed earth bricks). Indeed those raw clays belong to the category of "development minerals", as claimed by the ACP-EU initiative Program for Development Minerals. See https://www.cm.undp.org/content/cameroon/fr/home/operations/projects/poverty_reduction/programme-ACP-UE-en-faveur-des-mineraux-du-developpement-.html (in french). Here are some recent references: Balo et al. (2018). Metakaolin-based inorganic polymer synthesis using cotton shell ash as sole alkaline activator. Construction and Building Materials 191:1011-1022. Bogas et al. (2018). Unstabilized and stabilized compressed earth blocks with partial incorporation of recycled aggregates, Int. J. Archit. Herit. 3058, 1–16., Nshimiyimana P. et al. (2020). Physico-chemical and mineralogical characterization of clay materials suitable for production of stabilized compressed earth blocks. Constr. Build. Mater. 241, 118097. Temga et al. 2018. Lime- and sand-stabilization of clayey materials from the Logone valley for their utilization as building materials. J. Build. Engin. 19, 472–479.	Taken into account. Additional references will be reviewed.	Nathalie Fagel	AGES, Departement of Geology, University of Liege	Belgium
25119	44		47		Analysis presented in section 8.2.5.3 does not consider national circumstances (e.g. earthquakes)	Taken into account. Content on the urban built environment will consider possible considerations for structural safety and security in earthquake prone areas.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
30821	45	2	45	3	The sentence " It is estimated that final energy demand for steel production can be reduced by nearly 30% compared to 2010 levels and 12% efficiency improvement for cement (Lechtenböhmer et al. 2016)." is a/ not in line with the IEA Technology Roadmap for the Low Carbon Transition in the cement industry and b/ suggest that energy efficiency is the sole reduction pathway. We suggest referring instead to Chapter 11 section 11.4.1.2. [IEA2018d]. Indeed according to the IEA [IEA2018d] the main levers for CO2 reduction in the same sector is carbon capture and reducing the clinker content in cement. The remainder of the reduction arises from switching to lower carbon fuels and to a lesser extent energy efficiency	Taken into account. Related statements will be given in a more comparative manner across references beyond (Lechtenböhmer et al. 2016) or referred to Chapter 11.	Claude Lorea	Global Cement and Concrete Association	Belgium
10723	45	5	45	6	The draft text should be modified as indicated by the following red letters; Steel and concrete, the most commonly used structural materials in urban building, have high production stage emissions. Though the former has little or no capacity to store carbon, the latter takes up 15 to 27% of the CO2 emitted under the cement production from the atmosphere during the decades long life (Shinneider 2019).	Taken into account. However, the reference (Shinneider 2019) is not clear and the suggestion most closely relates to other references.	NAOKI AOKI	Japan Cement Association	Japan

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2187	45	6	45	6	<p>Please, change the sentence "...and little or no capacity to store carbon." by ". However, concrete is partially carbonated during its service-life and end-of-use stage (Xi et al 2016; Pade and Guimaraes 2007; Gajda and Miller 2000; Galán et al 2010; Andrade et al 2018; Sanjuán et al 2020). This means that about 20-23% of the carbon dioxide emitted within the calcination process is uptake (Andrade and Sanjuán 2018; Sanjuán et al 2020)."</p> <p>Xi, F.; Davis, S.J.; Clais, P.; Crawford-Brown, D.; Guan, D.; Pade, C.; Shi, T.; Syddall, M.; Lv, J.; Ji, L.; et al. Substantial global carbon uptake by cement carbonation. <i>Nat. Geosci.</i> 2016, 9, 880–883. https://doi.org/10.1038/NGEO2840</p> <p>Pade, C.; Guimaraes, M. The CO2 uptake of concrete in a 100 year perspective. <i>Cem. Concr. Res.</i> 2007, 37, 1348–1356. https://doi.org/10.1016/j.cemconres.2007.06.009</p> <p>Gajda, J.; Miller, F.M. Concrete as a Sink for Atmospheric Carbon Dioxide: A Literature Review and Estimation of CO2 Absorption by Portland Cement Concrete. <i>R&D Serial N_2255</i>, 1st ed.; PCA: Chicago, IL, USA, 2000.</p> <p>Galán, I.; Andrade, C.; Mora, P.; Sanjuán, M.A. Sequestration of CO2 by Concrete Carbonation. <i>Environ. Sci. Technol.</i> 2010, 44, 3181–3186. https://doi.org/10.1021/es903581d</p> <p>Andrade, C.; Sanjuán, M.A.; Rebolledo, N. Reliability calibration by carbonation exposure class deemed-to-satisfy prescriptions of Spanish concretes. <i>Concreto Construções</i> 2018, 91, 97–102. Available online: http://ibracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019).</p> <p>Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. <i>Appl. Sci.</i> 2020, 10, 339. https://doi.org/10.3390/app10010339</p> <p>Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. <i>Sustainability</i> 2018;10:4806. https://doi.org/10.3390/su10124806</p>	Taken into account. Additional references will be reviewed.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12503	45	6	45	6	<p>Please, replace the sentence "...and little or no capacity to store carbon." by ". Nevertheless, mortars and concretes are carbonated during its service-life and end-of-use stage (Xi et al 2016; Pade and Guimaraes 2007; Gajda and Miller 2000; Galán et al 2010; Andrade et al 2018; Sanjuán et al 2020). Therefore, about 20-23% of the carbon dioxide emitted within the calcination process is uptake Sanjuán et al 2020; Andrade and Sanjuán 2018)."</p> <p>Xi, F.; Davis, S.J.; Clais, P.; Crawford-Brown, D.; Guan, D.; Pade, C.; Shi, T.; Syddall, M.; Lv, J.; Ji, L.; et al. Substantial global carbon uptake by cement carbonation. <i>Nat. Geosci.</i> 2016, 9, 880–883. https://doi.org/10.1038/NGEO2840</p> <p>Pade, C.; Guimaraes, M. The CO2 uptake of concrete in a 100 year perspective. <i>Cem. Concr. Res.</i> 2007, 37, 1348–1356. https://doi.org/10.1016/j.cemconres.2007.06.009</p> <p>Gajda, J.; Miller, F.M. Concrete as a Sink for Atmospheric Carbon Dioxide: A Literature Review and Estimation of CO2 Absorption by Portland Cement Concrete. <i>R&D Serial N_2255</i>, 1st ed.; PCA: Chicago, IL, USA, 2000.</p> <p>Galán, I.; Andrade, C.; Mora, P.; Sanjuán, M.A. Sequestration of CO2 by Concrete Carbonation. <i>Environ. Sci. Technol.</i> 2010, 44, 3181–3186. https://doi.org/10.1021/es903581d</p> <p>Andrade, C.; Sanjuán, M.A.; Rebolledo, N. Reliability calibration by carbonation exposure class deemed-to-satisfy prescriptions of Spanish concretes. <i>Concreto Construções</i> 2018, 91, 97–102. Available online: http://ibracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019).</p> <p>Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. <i>Appl. Sci.</i> 2020, 10, 339. https://doi.org/10.3390/app10010339</p> <p>Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. <i>Sustainability</i> 2018;10:4806. https://doi.org/10.3390/su10124806</p>	Taken into account. Additional references will be reviewed.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
30819	45	6	45	6	<p>Concrete, on average across all uses, over its whole life cycle absorbs up to 23% of the process CO2 emitted during production (reference: CO2 uptake in cement-containing products - Background and calculation models for IPCC implementation IVL B2309" *2; https://www.ivl.se/toppmeny/publikationer/publikation.html?id=5656) Therefore it is proposed to replace sentence with " Steel and concrete, the most commonly used structural materials in urban building, have high production stage emissions. Concrete on average across all uses, over its whole life cycle, absorbs up to 23% of the process CO2 emitted during production (IVL B2309).</p>	Taken into account. Additional references will be reviewed.	Claude Lorea	Global Cement and Concrete Association	Belgium
30813	45	6	45	7	<p>Current sentence in line 6 and 7 credited to Ramage et al 2017 is only part of the story. Suggest including more text to provide full story. "Timber has a strength parallel to grain similar to that of reinforced concrete: hardwood is slightly stronger, and softwood slightly weaker, although timber cannot match modern high-strength concrete in compression. Timber is less stiff than concrete, and both materials are far less stiff and strong than steel. However, timber has a low density compared with these other conventional structural materials. This results in efficiency for long-span or tall structures, in which a significant part of the load to be carried by the structure is its own weight.</p>	Taken into account. Additional references will be reviewed.	Claude Lorea	Global Cement and Concrete Association	Belgium
33695	45	8	45	28	<p>Globally, there is immense pressure on land including for food and biofuel production. Given the scale of the proposed transition, it does not seem feasible that just the sustainable management of existing forests will be sufficient to meet demands without the conversion of other land use types into forestry. Also, is it possible to quantify how much land area will be required to sequester this much carbon by 2050?</p>	Accepted. Transition to bio-based building materials will be elaborated also considering the suggested comment.	Debra Roberts	EThekweni Municipality	South Africa

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2189	45	10	45	10	<p>Please, add the following paragraph after "(CITATION)": "RISCAuthority required a report to explore the impact that lightweight timber frame (LTF) buildings might have in the UK, as a future dominant building method, based upon current UK statistics and historic US experience. RISCAuthority membership comprises a group of UK insurers that actively support a number of expert working groups developing and promulgating best practice for the protection of people, property, business and the environment from loss due to fire and other risks. They realised that when comparing UK and US statistics, it is critical to bear in mind that the controls in place to limit the size of LTF buildings in the USA are considerably more stringent than in the UK (The Fire Protection Association 2011), but, even so, they reported a significant number of civilian injuries (194) and fatalities (24) sustained during large loss fires in the United States (2003-2008). In addition, The Building Research Establishment (BRE) proposed to increase the period of fire resistance of existing timber floors where there is an alteration, extension or material change of use of a timber building. It discusses the addition of protection to the underside of the ceiling, over the floor boarding and between the joists, and the problems of improving fire resistance when the joists are exposed to view from below (The Building Research Establishment 2008)."</p> <p>The Fire Protection Association, 2011. Design and Management Fire in timber frame buildings. A review of fire statistics from the UK and the USA. BDM14, First published 2011. Version 01. 2011 © The Fire Protection Association on behalf of RISCAuthority. Fire Protection Association London Road, Moreton in Marsh Gloucestershire GL56 0RH, UK.</p> <p>The Building Research Establishment, BRE 2008. DIG 208 Increasing the fire resistance of existing timber floors. IHS BRE Press. The Capitol Building. Bracknell. RG12 8FZ.UK. ISBN 0851253598. http://cfpa-e.eu/wp-content/uploads/2019/06/Article-2-from-Jim-G.pdf BRE 2008 https://www.thenbs.com/PublicationIndex/documents/details?Pub=BRE&DocID=14527</p>	Rejected. It is not possible to insert a particular case while the the suggested references are taken into account.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
30815	45	10	45	10	<p>It is not reasonable to present timber as an alternative to concrete and steel without recognising the current limitations and concerns with respect to fire. Suggest include at end of current paragraph : "However the behavior of timber in fire is fundamentally different to steel and reinforced concrete, however, since it is combustible, and research groups have identified the key research needs: performance of systems with various levels of encapsulation, the effect of flame spread due to a combustible structural material and the fire performance of connections. (Ramage et al. 2017)</p>	Taken into account. Additional references will be reviewed.	Claude Lorea	Global Cement and Concrete Association	Belgium
44229	45	12	45	19	<p>This section should be moved to Chapter 9.</p>	Better coordination with Chapter 9 on "Buildings" that includes a section on "embodied energy and embodied carbon in building materials" may be possible while this content is currently not represented.	BERTOLDI PAOLO	European Commission	Italy
12505	45	14	45	14	<p>Please, add the following paragraph after "carbon sinks": "However, it should be taken into account that fire risk is increased with associated the social (lower durability than reinforced concrete buildings), economic (high cost) and environmental (carbon dioxide, organic among other emissions) consequences. For instance, The Building Research Establishment (BRE) proposes to increase the period of fire resistance of existing timber floors where there is an alteration, extension or material change of use of a timber building. Also, they recommend the addition of protection to the underside of the ceiling, over the floor boarding and between the joists, and underlined the problems of improving fire resistance when the joists are exposed to view from below (The Building Research Establishment 2008). On the other hand, RISCAuthority report studied the impact that lightweight timber frame (LTF) buildings might have in the UK, as a future dominant building method, based upon current UK statistics and historic US experience. They are a group of expert working groups developing best practice for the protection of people, property, business and the environment from loss due to fire and other risks. They concluded that when comparing UK and US statistics, it is critical to bear in mind that the controls in place to limit the size of LTF buildings in the USA are considerably more stringent than in the UK (The Fire Protection Association 2011), but, even so, they reported a significant number of civilian injuries (194) and fatalities (24) sustained during large loss fires in the United States (2003-2008)."</p> <p>The Building Research Establishment, BRE 2008. DIG 208 Increasing the fire resistance of existing timber floors. IHS BRE Press. The Capitol Building. Bracknell. RG12 8FZ.UK. ISBN 0851253598. http://cfpa-e.eu/wp-content/uploads/2019/06/Article-2-from-Jim-G.pdf BRE 2008 https://www.thenbs.com/PublicationIndex/documents/details?Pub=BRE&DocID=14527</p> <p>The Fire Protection Association, 2011. Design and Management Fire in timber frame buildings. A review of fire statistics from the UK and the USA. BDM14, First published 2011. Version 01. 2011 © The Fire Protection Association on behalf of RISCAuthority. Fire Protection Association London Road, Moreton in Marsh Gloucestershire GL56 0RH, UK.</p>	Taken into account. Additional references will be reviewed.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
34593	45	21	45	21	<p>bio-based or environmental friendly material? It includes bio-based</p>	Taken into account.	Ova Candra Dewi	Universitas Indonesia	Indonesia
44231	45	21	45	28	<p>It could be interesting to give some information for the total demand for timber if all new building will be timber based. Would be enough timber sustainable production be available to meet the demand ?</p>	Taken into account. Additional references will be reviewed.	BERTOLDI PAOLO	European Commission	Italy
2191	45	25	45	25	<p>Please, add the following sentence after "...as biochar (figure 8.25).": "Transition to bio-based building materials by the urban building sector, only would be feasible in countries with forests and an appropriate humid climate. For instance, this is not the most sustainable solution for north African countries, because to import wood from North European countries will have an important environmental (carbon dioxide, NOx and SOx emissions from transport), social and economic cost that should be considered. On the other hand, according to Basbagill et al (Basbagill et al 2013),the embodied impact factor for concrete ranges between 0.05 and 5.15 kg CO2e/kg material; whereas for wood products ranges between 0.29 and 1.02 kg CO2e/kg material. Consequently, the concrete mix design and the type of cement in the concrete will play a key role in Climate Change mitigation (Akbarnezhad and Xiao 2017; Sanjuán et al. 2019)."</p> <p>J. Basbagill, F. Flager, M. Lepech, M. Fischer. Application of life-cycle assessment to early stage building design for reduced embodied environmental impacts, Building and Environment, Volume 60, 2013, Pages 81-92. https://doi.org/10.1016/j.buildenv.2012.11.009.</p> <p>Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346</p> <p>Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005</p>	Taken into account. Additional references will be reviewed.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
6281	45	25	45	25	<p>The citation of the figure (figure 8.25) needs to begin with capital letter that is (Figure 8.25).</p>	Noted.	Brown Gwambene	Marian University College	United Republic of Tanzania

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20739	45	25	45	25	Please, add the following sentence after "...as biochar (figure 8.25)": "Transition to bio-based building materials by the urban building sector, only would be feasible in countries with forests and an appropriate humid climate. For instance, this is not the most sustainable solution for north African countries, because to import wood from North European countries will have an important environmental (carbon dioxide, NOx and SOx emissions from transport), social and economic cost that should be considered. On the other hand, according to Basbagill et al (Basbagill et al 2013), the embodied impact factor for concrete ranges between 0.05 and 5.15 kg CO2e/kg material; whereas for wood products ranges between 0.29 and 1.02 kg CO2e/kg material. Consequently, the concrete mix design and the type of cement in the concrete will play a key role in Climate Change mitigation (Akbarnezhad and Xiao 2017; Sanjuán et al. 2019)." J. Basbagill, F. Flager, M. Lepech, M. Fischer. Application of life-cycle assessment to early stage building design for reduced embodied environmental impacts, Building and Environment, Volume 60, 2013, Pages 81-92. https://doi.org/10.1016/j.buildenv.2012.11.009 . Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005	Taken into account. Additional references will be reviewed.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12509	45	28	45	28	The embodied impact factor for concrete ranges between 0.05 and 5.15 kg CO2e/kg material; whereas for wood products ranges between 0.29 and 1.02 kg CO2e/kg material (Basbagill et al 2013). Therefore, a low-carbon concrete mix design produced with a low-carbon Portland cement will be another alternative within the context of the Climate Change mitigation (Akbarnezhad and Xiao 2017; Sanjuán et al. 2019; Sanjuán et al. 2020)." J. Basbagill, F. Flager, M. Lepech, M. Fischer. Application of life-cycle assessment to early stage building design for reduced embodied environmental impacts, Building and Environment, Volume 60, 2013, Pages 81-92. https://doi.org/10.1016/j.buildenv.2012.11.009 . Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005 Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339	Taken into account. Additional references will be reviewed.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
30823	45	28	45	28	Only selective extracts from Churkina have been used. For balance add: "However without improvements in using lignin-based adhesive technologies or mechanical lamination techniques there will be a massive increase in the production of synthetic glues and adhesives and their potentially harmful chemical residues in wood waste at the end of a building's life. (Churkina et al 2020)	Taken into account	Claude Lorea	Global Cement and Concrete Association	Belgium
2193	45	29	45	29	Please, add a new sentence in line 29: "The substitution of engineered timber for steel and concrete only would be possible in humid countries with forests. For instance, North African countries will not be able to follow this strategy. In addition, some disadvantages of timber buildings are their shorter service-life (50 years) compared with that of reinforced concrete (more than 100 years) and the impossibility of being used in high-rise buildings (Akbarnezhad and Xiao 2017)." Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005	Rejected. The life span of a building is less related to the material than to its design. Timber trading is widely spread today.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12507	45	29	45	29	Please, add a new sentence in line 29: "The substitution of engineered timber for steel and concrete only would be possible in humid countries with forests. For instance, North African countries will not be able to follow this strategy.	Rejected. The life span of a building is less related to the material than to its design. Timber trading is widely spread today.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
20741	45	29	45	29	Please, add a new sentence in line 29: "The substitution of engineered timber for steel and concrete only would be possible in humid countries with forests. For instance, North African countries will not be able to follow this strategy. In addition, some disadvantages of timber buildings are their shorter service-life (50 years) compared with that of reinforced concrete (more than 100 years) and the impossibility of being used in high-rise buildings (Akbarnezhad and Xiao 2017)." Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005	Rejected. The life span of a building is less related to the material than to its design. Timber trading is widely spread today.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12511	45	30	45	30	Please, add Table 2 from reference: Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Also, add the text: "Cement type in concrete will be able to uptake carbon dioxide from the atmosphere (Table 2 from ref. Sanjuán et al. 2020), then, it should be taken into account in concrete mix design". Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339	Rejected. It is not possible to insert a particular case study.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
19533	46	1	46	1	What is meant by grayscale in Figure 8.24?	Taken into account	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
2195	46	1	46	6	Figure 8.24 should be adapted, i.e. recalculate for concrete instead of cement. Cement is a concrete component. The three construction materials in this Figure 8.24 should be concrete, steel and timber. Also, it should be taken into account the different CO2 factor for each type of concrete as given in references (Li and Chen 2017; Akbarnezhad and Xiao 2017). Lijuan Li, Kanghai Chen. Quantitative assessment of carbon dioxide emissions in construction projects: A case study in Shenzhen, Journal of Cleaner Production, Volume 141, 2017, Pages 394-408, https://doi.org/10.1016/j.jclepro.2016.09.134 . Akbarnezhad, A.; Xiao, J. Estimation and Minimization of Embodied Carbon of Buildings: A Review. Buildings 2017, 7, 5. https://doi.org/10.3390/buildings7010005	Rejected. We agree that cement is used in concrete production and concrete is used in construction. Benefits of displaying concrete instead of cement in this figure are however not obvious, as the purpose of this figure to show comparison of generic mineral-based and bio-based materials.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12513	46	1	46	6	Figure 8.24 compares cement, steel and timber. However, in practice, concrete is used in construction instead of concrete. Therefore, this comparison is confusing. It is recommended to redraw Figure 8.24 considering the different types of cements shown in Table 2 of reference: Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339	Rejected. We agree that cement is used in concrete production and concrete is used in construction. Benefits of displaying concrete instead of cement in this figure are however not obvious, as the purpose of this figure to show comparison of generic mineral-based and bio-based materials.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
37483	46		46		Figure 8.24 is not clear to me what the grey vs white vs dark grey represents.	Taken into account	Michiel Schaeffer	Climate Analytics	Netherlands
33697	46				Very useful information on benefits of timber. Please also report on compacted / rammed earth construction reinforced with natural fibre – there is literature on this. There must be huge potential for avoided emissions in growing cities in developing countries.	Accepted.	Debra Roberts	EThekweni Municipality	South Africa
34595	47	5	47	5	legend is also needed in the figure (not only in the text)	Accepted.	Ova Candra Dewi	Universitas Indonesia	Indonesia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
33699	47	15	47	15	Table 8.26 seems misplaced. Should this not be in section 8.2.2?	Accepted.	Debra Roberts	EThekwini Municipality	South Africa
19535	47	16	47	17	Figure 8.26 is not a figure but a table. The unit for the numerals should be shown.	Accepted.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
43073	48	1	48	1	As the section is organized by mitigation option, the policy discussions are embedded and diffused. It might be worth including an explicit section to address the empirical evidence on urban policies. Such a section could assess policy options using the assessment criteria laid out by Chapter 13 in order to give perspective to the relative merits and shortcomings of specific policy instruments.	Agreed- will connect with Ch13 to explore.	Parth Bhatia	Centre for Policy Research, New Delhi	India
47811	48	1	48	43	First 2 paragraphs line 1 - 28 seem better suited to introduction of the entire chapter to provide context about changing landscape of urban research. It's not obvious what the link is here to mitigation options. Indeed the first 2 paragraphs argue for a shift from urban research focused on ecological, material and energy flow analysis towards complex systems, but then the mitigation example given in paragraph 3 (line 26) is about industrial symbiosis which is embedded in material and energy flow analysis, not complex systems.	Agreed- will consider shifting this.	Martino Tran	University of British Columbia	Canada
15579	48	2	48	3	Edits in italics, strikethrough and bold: There is growing literature showing mitigation actions in urban areas to reduce the emissions sources and provide enhancement of emission sinks.	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15581	48	3	48	3	bracketed reference needs updating (reference to figure about literature)	Noted- will do.	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15583	48	5	48	5	Edits in italics, strikethrough and bold: Several urban mitigation options are implemented as standalones such as energy efficient appliances	Noted- will edit the language.	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
44233	48	6	48	6	A good overview of mitigation options adopted by cities, based on city reports (not plans) are described in the following paper: Palermo et al., 2020, Achieving the 1.5° emission reduction target: an assessment of climate change mitigation policies in cities, Sustainable Cities and Society (in the final round of comments), it is suggested to cite it here.	Noted- will consider if it is out before the cut off date.	BERTOLDI PAOLO	European Commission	Italy
15585	48	9	48	9	Edits in italics, strikethrough and bold: An integrated systems approach is essential in considering urban mitigation options and strategies.	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15587	48	10	48	10	Edits in italics, strikethrough and bold: While a systems approach towards understanding cities has a long history	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15589	48	10	48	10	Edits in italics, strikethrough and bold: traditionally more most research focused	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15591	48	15	48	15	Edits in italics, strikethrough and bold: Considers urban system within	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
47767	48	15	48	15	Gires, A. et al. (2017) 'Fractal analysis of urban catchments and their representation in semi-distributed models: Imperviousness and sewer system', Hydrology and Earth System Sciences, 21(5), pp. 2361–2375. doi: 10.5194/hess-21-2361-2017.	Please note that italics and bolded statements are not possible to see in the comment spreadsheet	Daniel Schertzer	Ecole des Ponts ParisTech,	France
45819	48	19	48	28	Consider the work of Bill Rees 1997 and Rees and Wackernagel (1996) on ecological footprinting and cities,	Reject- the refs are too old and out of AR6 assessment range. Also the cited refs here reflects ecological footprinting idea.	Sabrina Dekker	Dublin City University	Ireland
1983	48	19	48	43	For additional citations to support See Maxwell, K., S. Julius, A. Grambsch, A. Kosmal, L. Larson, and N. Sonti, 2018: Built Environment, Urban Systems, and Cities. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 438–478. doi: 10.7930/NCA4.2018.CH11	Good reference, will add.	Ann Kosmal	U.S. General Services Administration	United States of America
15593	48	31	48	32	Edits in italics, strikethrough and bold: (2 rewrites provided) it shows any mitigation options potentially have negative consequences in other sectors, upon other people, or in other parts of the world. OR it shows any mitigation option potentially has negative consequences in other sectors, upon other people, or in other parts of the world.	Edit accepted	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15595	48	32	48	32	Edits in italics, strikethrough and bold: requires	Edit accepted	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15597	48	35	48	35	Edits in italics, strikethrough and bold: on, synergies (remove comma)	Edit accepted	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15599	48	37	48	37	Edits in italics, strikethrough and bold: becomes the input	Edit accepted	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15601	48	38	48	38	Edits in italics, strikethrough and bold: nature among of	Edit accepted	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
14743	48	1	98	42	In section 8.3 : Urban Mitigation options for both short, mdeium or long term - a very important approach of decentralizing administration and reducing pressure on the capitals or big cities, especially in the the developing countries, should be emphasized too, which is missing. Example of Dhaka can be mentioned here. A city of more than 2 million, it is burdened with all sorts of urban environmental problems that may lead to greater emission like no greeneries, prolonged traffic congestion, urban heat island and greater need for airconditioning, poor waste management through open dumping, etc. A country of 160 million, it could not develop a secong city other than Dhaka. Ultimately it is deteriorating emission scenarios.	Not clear what the reviewer recommends.	Md. Sirajul Islam	Department of Civil and Environmental Engineering, North South University, Bashundhara, Dhaka	Bangladesh
33701	48				Comment also relevant to chapter. In this section it would be very helpful if mitigation options were framed in terms of where the emissions come from, and where the greatest savings are possible and necessary. For example, starting with a chart that shows, by regions, the main sources of urban emissions (including up and downstream emissions related to high urban consumption), and then detailing the potential impact of different mitigation options. If the number one source is energy, then this sector needs to be discussed first, and within this sector, the options that have the biggest potential impact should then receive priority. That could be a hugely valuable output of this chapter. Currently options are grouped by short and long term, and one loses track of specific options.	Yes, this would be very helpful—perhaps also adding a figure	Debra Roberts	EThekwini Municipality	South Africa
15603	49	18	49	18	Edits in italics, strikethrough and bold: lies on the upper stream	Editorial	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15605	49	19	49	19	Text: suggest that up to 70% of consumption based emissions in cities are found from other regions. Suggest revision of wording to recognise that emissions are not 'found' from other regions, but rather are generated at a source outside of their point of consumption. More accurate language required.	Noted. Will discuss with authors	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
15607	49	23	49	23	Edits in italics, strikethrough and bold: called for, a systems approach	Editorial	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
44235	49	23	49	29	Further data on cities with mitigation and adaptation plans, now both plans are mandatory, is available in teh following report: Bertoldi, P., Rivas Calvete, S., Kona, A., Hernandez Gonzalez, Y., Marinho Ferreira Barbosa, P., Palermo, V., Baldi, M., Lo Vullo, E. and Muntean, M., Covenant of Mayors: 2019 Assessment, EUR 30088 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-10722-4, doi:10.2760/775755, JRC118927, available at: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC118927/covenant_of_mayors_2019_assessment_online.pdf	Noted. Will discuss with authors	BERTOLDI PAOLO	European Commission	Italy
45821	49	23	49	33	Irish local authorities consider both mitigation and adaptation, as does City of Vancouver, Portland, Glasgow, NYC, Singapore, there are many that respond to both in their action plans	Noted. Will check	Sabrina Dekker	Dublin City University	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15609	49	27	49	28	Text: show while approximately 2/3 of these cities have a local mitigation plan, only 17% has a joint mitigation and adaptation plan. Suggest using a consistent approach to numbers and measurements: swapping from fractions to percentages in the same sentence is not advised.	Editorial	Shane O'Hanlon	Stantec Consulting Ltd.	Canada
1479	49	33	49	33	May add an example of tradeoffs regarding the challenges for the urban mitigation and adaptation plan. "For example, Kraxner et al. (2016) suggested urban forest has a high potential contribution to the urban resilience, however, the urban planning considering urban forest requires to minimize the conflicts of various environmental, economic and social uses for this area." (Kraxner, F.; Aoki, K.; Kindermann, G.; Leduc, S.; Albrecht, F.; Liu, J.; Yamagata, Y. Bioenergy and the city—What can urban forests contribute? Appl. Energy 2016, 165, 990–1003)	Noted. Will add the references.	JUNGUO LIU	Southern University of Science and Technology	China
12691	49	36	50	11	Most of species relevant to urban air quality are "SLCFs" and their mitigation will directly impact climate, in addition to co-benefit. This aspect should be strengthened, with cross-WG link to Chapter 6 (SLCFs) of WG1.	Partially accepted. Short-lived climate forcers (SLCFs) may be better represented in another section on co-benefits that takes place in the FOD as section 8.7.1.	Yugo Kanaya	Japan Agency for Marine-Earth Science and Technology (JAMSTEC)	Japan
26615	49	4			(e.g. efficiency gain and move to more circular approach in urban heating)	Taken into account.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
25615	49	38			Eco-moderization/eco-industrial linkages can be very fragile but there is no discussion on this aspect. (e.g. one business goes under or relocated the entire chain can break)	The suggestion does not align with the page/line number, its proximity and related sections.	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
26617	49	39			...well as circular economy (in terms of both materials and energy),	Taken into account.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
19537	50	13	50	17	What is meant by the diameter of the symbols for the case study?	The diameter in Figure 8.27 relates to the frequency of the urban case study in the context of the systematic literature review.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
43103	50	0			Figure 8.27 has missing info; for example the yellow and green colors are not indicated in the legend.	The geographical coloring is not represented in the original figure.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
47813	50	15			For fig 8.27 not sure how to interpret this. Is this suggesting for example there are a lack of case-studies in North America on CO2 emissions, transport and households? Or that there are more case-studies in Europe on governance than water demand? Might this be explained by the methodology that is used for these types of studies e.g. governance assessed by case-studies, where as transport, water demand, etc. assessed by modelling work? Perhaps some qualifying comments on the methodology and assumptions used to generate this graph would be useful.	The original figure relates to prevalent topics by region and infrequent topics by region.	Martino Tran	University of British Columbia	Canada
33877	50				Figure 8.27 – wrong numbering. The colour coding of 'Prevalent' and 'Infrequent' topics gets confused with regional colour coding. Please change that. The icons are also not very helpful. How many categories are there in total? Consider making a table, with the topics listed on the left, and the regions forming columns, and then show simple symbols in each cell, so that the size of the symbol reflected the number of case studies done for each topic/region. This way one could get an idea of which topic came up most often in total, and how the regions compared with regard to types of topics and number of case studies done.	Accepted with draft table in preparation.	Debra Roberts	EThekwini Municipality	South Africa
33703	51	12	19	19	RE 'low hanging fruit' it would be very helpful if there was an indication of how much of the emissions could be avoided by these different options. For instance, any form of recycling or energy harvesting from waste is a last resort. Avoiding waste, wastefulness and the underlying wasted production would have a much bigger impact (e.g. stop plastic packaging and the manufacture of plastic), also different waste materials have different embedded emissions (metal versus glass versus plastic etc). The order of priority with regard to these 'low hanging fruit' should be communicated clearly, as in http://dx.doi.org/10.1016/j.resconrec.2015.10.026	Noted. Will check	Debra Roberts	EThekwini Municipality	South Africa
45823	51	1	51	7	The figure does not achieve what the text describing the figure purports. Why are they tilted urban scenarios? The scenarios are more like policy options. These options would not happen in isolation of each other. Urban form is also not quite right. The intersectoral approaches, the listing of the sectors makes it sectoral, they need to be illustratively connected, perhaps thematic.	(no, another)	Sabrina Dekker	Dublin City University	Ireland
24645	51	12	51	13	The use of the CDM to define projects that are "cost-effective, measurable, reportable, and verifiable" is inappropriate. It is well-established that the majority of CDM projects are non-additional, that is, they represent fictitious emissions reductions. CDM methodologies rely upon exact quantification of a counterfactual baseline to calculate their emissions reductions, belying the claim of "measurable" and "verifiable." Many of the project types listed have been mired in controversy and some, such as building new fossil fuel power plants, cannot remotely be considered mitigation actions. The authors should drop all reference to the CDM, which is a discredited program, and instead critically evaluate specific actions that can reasonably claim to result in emissions reductions.	Noted. Will rewrite or find reference	Neil Tangri	GAIA	United States of America
27425	51	12	51	13	The CDM was set up to allow developed countries to reach their emission reductions targets at lower cost, but since 2005 this mechanism has been plagued with flaws and has failed to reduce emissions. In some cases, it even led to an increase in emissions. The mechanism has also supported projects which infringed on Human Rights, and now represents a real and sizeable threat to the success of the Paris Agreement. Countries with vested interests in the continuation of the scheme, will continue to defend its credibility vigorously, but future reliance on these 'junk credits' to meet emission reduction targets would jeopardize the entire global effort to reduce the impacts of climate change. This was underscored in an 2016 Oeko Institute report for the European Commission that found that nearly three quarters of all credits which could be supplied before 2020 are not likely to be additional (ie the underlying emission reductions would have happened anyway even in the absence of the market). Oeko-Institut (2016): „How additional is the Clean Development Mechanism?“, study prepared for DG CLIMA - European Commission	Noted. Will rewrite or find reference. Better use a neutral wording.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
32497	51	12	51	19	Note also that funding from the Montreal Protocol's Multilateral Fund and other entities like the Green Climate Fund will help facilitate a rapid transition away from high-GWP HFC refrigerants, while also promoting improvements in energy efficiency of cooling equipment, resulting in reductions of CO2 and black carbon. Dreyfus G., et al. (2020) ASSESSMENT OF CLIMATE AND DEVELOPMENT BENEFITS OF EFFICIENT AND CLIMATE-FRIENDLY COOLING, Chapter 4: Policies and Recommendations ("A current challenge is the absence of coordination between funding from the MLF for refrigerant replacement and funding for energy efficiency from the Green Climate Fund, Global Environment Facility, and other climate funds. This is inefficient and potentially costly if cooling systems are optimized for one objective at a time, requiring multiple changes in equipment. The Biarritz Pledge for Fast Action on Efficient Cooling, discussed below, offers hope that this issue will be addressed in the near future.")	Noted. Will check	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44237	51	12	51	19	It is important to highlight that CDMs are only implemented in developing countries and that end-use energy efficiency projects are penalised in the CDM due to the complex methods to calculate avoided GHG emissions.	Noted. Will check	BERTOLDI PAOLO	European Commission	Italy
27427	51	15	51	15	The inclusion of landfill gas recovery systems and waste to energy under immediate actions is inconsistent. The term 'waste to energy' includes different technologies; incineration require large infrastructure and its construction will take years - so it cannot be included as immediate action. Moreover, other technologies like small-scale biogas could be included as immediate. It requires further specification. Moreover, it does not make sense that further on the same section 'waste management' is included under mid-term actions. It needs restructuring.	Noted. Will check	Mariel Villella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
25121	51	17	51	17	Delete terms such as "urban greening" as there is no common agreed definition	Noted. Will check	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
6283	51	18	51	18	The word 'table below' shows: need to be captured specifically that is 'Table 8.1' for example	Noted. Will check	Brown Gwambene	Marian University College	United Republic of Tanzania
40081	51	19	51	19	Insert after "... income populations": "However, due to capacity constraints and lacking reactivity of municipal governments, municipalities were unable to exploit the full potential of the CDM (Sippel and Michaelowa 2013)." Sippel, Maïke; Michaelowa, Axel (2013): Financing a Green Urban Economy: The Potential of the Clean Development Mechanism (CDM), in: Simpson, Richard; Zimmermann, Monika (eds.): The Economy of Green Cities. A World compendium on the Green Urban Economy, Springer, Dordrecht, p. 363-368	Noted. Will check	Axel Michaelowa	University of Zurich	Switzerland
33705	51	21	51	21	The message in Table 8.1 is not clear. What do the values under reduction mean? A tonne of GHG captured? Also, what do the percentages mean? Project efficiency? Completion status? Please check the entire chapter and ensure that all tables are numbered sequentially.	Noted. Will check	Debra Roberts	EThekwini Municipality	South Africa
19539	51	24	51	24	What is the unit of "Reduction"?	Accepted	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
25617	51	3			I see popular buzzterms, block chain, "big data" but where is the evidence these efforts amount to any reductions? How about social justice, equity, or sufficiency angles of these efforts?	Noted. Will discuss with authors	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
47815	51	3			Please clarify the objective of this figure. What is the shape, and apply? And long-term transformations appears inconsistent with short-term reflections? Also, what is a social technology in this context? How much human interaction is there with a microgrid for example? And is a sharing economy and circular economy considered technologies relative to grids and vehicles? It's also not clear what the temporal cause and effect is here? What are the references for empirical findings (2014 - 2019)?	Editorial	Martino Tran	University of British Columbia	Canada
33879	51	21			In the Table 8.1, what does % reductions refer to ? Reported in that particular project compared to all the projects in the database? How meaningful is that measure?	Accepted	Debra Roberts	EThekwini Municipality	South Africa
47817	51	21			Please indicate the units in the reductions column for Table 8.1	Accepted	Martino Tran	University of British Columbia	Canada
4995	51				Resilient and sustainable cities through energy efficient homes and waste self-management.	Not sure that the suggested title conveys the intent of the figure.	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5015	51				vegetated walls and terraces	Is this a suggestion for adding "green walls" to the figure? Not clear.	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
14219	51				Table 8.1. About the tittle "Reductions": it would be interesting to clarify whether they are "proposed" or "achieved".	Accepted	Estela Santalla	Facultad de Ingeniería UNICEN www.fio.unicen.edu.ar	Argentina
34597	52		52		what is the relation of Mas Rapi Transit Project with Waste Management? Please add more info on the subject such as clean energy for MRT.	Accepted	Ova Candra Dewi	Universitas Indonesia	Indonesia
18589	53	4	53	4	Some land use strategies (e.g., banning certain land uses such as elimination of brick kilns citing threats to residents) and urban policies (e.g., new regulation on vehicular emission requiring maintenance or servicing of vehicles; rules controlling number of vehicles or traffic trips such as introduction of odd-even numbers to control air pollution in Delhi) could also have immediate impacts, but these are missing in the subsequent discussions.	Accepted	Kirti Joshi	Tribhuvan University	Nepal
43071	53	4	53	4	The treatment of the immediate mitigation options could be embedded with more empirical examples of urban programs or policies to make the discussions more policy relevant.	Accepted	Parth Bhatia	Centre for Policy Research, New Delhi	India
33707	53	5	53	5	Which spreadsheet is being referred to here?	Accepted	Debra Roberts	EThekwini Municipality	South Africa
44239	53	5	53	5	please specify to which spreadsheet you are referring to.	Accepted	BERTOLDI PAOLO	European Commission	Italy
45825	53	6	53	7	Need to explain terms, Renewable Portfolio Standard is US specific/centric. Vernacular Architecture needs to be explained.	Accepted	Sabrina Dekker	Dublin City University	Ireland
42873	53	4	57	23	The rationale for the selection of transport measures presented is not justified. Many measures can have immediate effects - Urban Vehicle Access Regulations (e.g. daytime van/freight bans), re-allocation of road space to PT, walking and cycling, parking pricing and management and may well be more cost effective and easier to implement.	Accepted	Mark MAJOR	Partnership on Sustainable Low Carbon Transport	Spain
44245	53	4	57	23	Could you please insert a subsection 8.3.3.X on energy efficiency measures in building in cities: for example building codes, efficient appliances, smart meters, demand response to facilitate the use of renewable energies.	Accepted	BERTOLDI PAOLO	European Commission	Italy
31339	53	4			The section 8.3.3 has discussed the impacts of immediate mitigation options on emissions in the fields of transport, waste, water etc. Would it be better to put them in a more clear way?	Accepted	YUAN GAO	Zhengzhou University	China

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18487	54	1	2		I am afraid I do have some serious concerns about Table 8.2 Immediate Impact Strategies, Political, Economic and Social Constraints- because it makes a series of politically normative judgements - in short, it is policy prescriptive to make an assessment for governments about the political implications of their decisions- these are political calculations and there is a long tradition in liberal democracies of separating political staff from policy advise- these are political calculations not policy ones- eg to say there is "Major popular resistance" to congestion charges- can be interpreted (not intended I am sure) as a political risk assessment statement. Yes there could be popular resistance and has been but this could also be influenced by the way that this policy choice is framed and it may be that the resistance is industry based and funded at core- we need more analysis to know. Similarly the comment there are no major problems with the sharing economy is contestable - there are significant schools of thought now challenging the neoliberal assumptions embedded in a sharing economy (see Murrillo et al 2017 When the sharing economy becomes neoliberalism on steroids: Unravelling the controversies) As a result this column on political constraints is problematic as framed- such statements are normative -they foreclose options at best, and at worst they risk obfuscating deep political value debates- this isn't the authors' intension of course but it is problematic when nuanced political debate that varies in time / place is framed in a table like this in my view -see also Broto 2017 Urban Governance and the Politics of Climate change on heterogenous nature of governance choices or see the out of the box thinking of Somerville Critique of Climate mitigation policy 2020 https://doi.org/10.1332/030557319X15661682426163 we need to leave open political possibilities that are foreclosed in a table presentation like this (by the same token one of NZ 's governing minority party just objected strongly to EV policy -where this table predicts no major problems) etc etc	Accepted	Bronwyn Hayward	University of Canterbury	New Zealand
33709	54	1	54	1	What is table 8.2 based on? Assessment of the literature? Is the information a global one or a case study? Important to specify this. It might be helpful to write all the acronyms in full as additional texts to the title	Accepted	Debra Roberts	EThekwini Municipality	South Africa
43069	54	1	54	1	The table could be enhanced by specifically addressing the typical policy options deployed under each strategy / intervention. Chapter 13 (policies) provides a taxonomy of policy instruments which would be useful here.	Accepted	Parth Bhatia	Centre for Policy Research, New Delhi	India
10647	54		54		It is hard to say that there is no major problem on political constraints and social concerns of Sharing Economy Cars as seen in Table. I suggest the authors should explain how these results came out or provide strong evidence.	Accepted	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
26619	54	1			Table 8.2 could include Waste heat reuse.	Accepted	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
47819	54	1			Table 8.2 appears to have limited evidence base in terms of empirical work or quantitative modelling results. Could improve and clarify where there is evidence based on either empirical or modelled results (and clarify assumptions, scope in empirical/modelling work in additional column). It might be more helpful to indicate the mitigation potential of each technology/strategy, and focus less on the constraints columns, which are important but more speculative. The discussion on the various constraints could provide more context and justification for why some strategies are considered short, medium, long-term, which could be included at the beginning of chapter.	Accepted	Martino Tran	University of British Columbia	Canada
25619	54				I tire of seeing mention of the "sharing" economy when nothing is actually being shared, rather simply short-term rentals. Sharing doesn't cost money. Further, there is no evidence that Uber etc reduce emissions or traffic. In fact several studies are now showing the exact opposite, they shift operating costs onto contractors, depressing drivers earnings, offer no social benefits, and actually lead to an increase in traffic and lower use of public transit. Don't promote the "Sharing" Economy propaganda when the science shows so many of their claims to be false and their practices to be abusive to the [not] workers.	Accepted	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
33881	54				Table 8.2 and associated text: if data are available, please calculate and consider in terms of total emissions averted and rank accordingly, e.g. if congestion pricing can reduce transport emissions by 15% and transport emissions are one of the biggest sources in cities, then that is a big number. Please avoid acronyms in Tables. Also, consider this table in the light of avoided emissions for new developments particularly in developing countries. What options are there going forward, for growing cities in resource-poor situations?	Noted and taken into account	Debra Roberts	EThekwini Municipality	South Africa
33711	55	3	55	9	Too short and based on very few case studies to warrant a sub-section in this report. No perspectives from developing contexts reflected here.	Noted	Debra Roberts	EThekwini Municipality	South Africa
42951	55	15	55	15	Formulation "The results are inconsistent" should be replaced by more appropriate terminology, e.g. "The results are difficult to interpret".	Accepted, formulation changed	Sigrid Kusch-Brandt	University of Padua	Germany
25937	55		55		In table 8.2 Smart City cannot be assimilated to an Initiative.	Accepted. Now more specific and clarified what aspect of smart city is mean here.	Edoardo Croci	Bocconi University	Italy
34599	55		55		why is it written "not clear" for CO2 impacts on Smart City - need justification	Noted. This should be changed to 'mixed evidence'.	Ova Candra Dewi	Universitas Indonesia	Indonesia
44241	55		55		Table 8.2 "Passive and VA", please add Net Zero Energy Buildings and High Efficiency Appliances and Equipment. NZEBs do not increase construction costs for new buildings.	Noted. Should we deal with NZEBs or will this be dealt by the Building chapter?	BERTOLDI PAOLO	European Commission	Italy
31341	55	11	56	14	The title of section 8.3.3.2 needs to be Sharing Economy (car sharing) because the car sharing has been only focused.	Noted. This is valid comment. We need to add evidence related to other aspects of sharing economy.	YUAN GAO	Zhengzhou University	China
33713	55	11	56	14	This is quite short and based on very few case studies to warrant a sub-section in this report. No perspectives from developing contexts reflected here. If there are no studies from other contexts, this should be highlighted to inform the reader that there is a gap in the literature. Please check other sub-sections that have similar issues and consider how you can address them.	Noted. This is valid comment. We need to add evidence related to other aspects of sharing economy.	Debra Roberts	EThekwini Municipality	South Africa
44243	55	12	56	14	The sharing economy is also applicable to the building sector, but this is not mentioned here	Noted. This is valid comment. We need to add evidence related to other aspects of sharing economy.	BERTOLDI PAOLO	European Commission	Italy
25621	55				Smart City-please mention the issues of privacy (individual), and data privacy issues. Ownership of data collected, etc.	noted. This should be added to "social concerns"	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
6285	56	12	56	14	The discussed option of car-sharing to reduce GHG emissions requires more explanation that differentiates the situation in the developed and developing world.	Noted. This should be addressed.	Brown Gwambene	Marian University College	United Republic of Tanzania

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27429	56	16	56	16	The section about 'Landfill gas recovery' needs to add that this technology is at the bottom of the Waste Hierarchy. According to the reference below, this is the least environmentally favourable of options, but it is still more environmentally favourable than allowing landfill gas to vent to atmosphere. The sustainability ranking accords with the waste hierarchy as detailed in the EU Waste Framework Directive (EU 2008/98/EC (2008)). It demonstrates that where waste is generated, it will be most sustainable to prepare the waste for re-use and recycle, rather than landfill with landfill gas combustion and energy recovery. GHG emission savings from applying the waste hierarchy are achieved through: reduced raw material extraction and manufacturing, recycled materials replacing virgin materials, compost replacing organic fertilizers, recovery of energy, avoided landfill emissions, and the carbon storage of the remaining fossil materials in landfill. This would encourage waste composting projects in Africa which conform more closely to the waste hierarchy than landfill gas combustion and landfill gas to energy projects. Couth, R., and C. Trois. "Sustainable waste management in Africa through CDM projects." Waste management 32.11 (2012): 2115-2125. https://www.sciencedirect.com/science/article/pii/S0956053X12000827	Accepted	Maríel Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
14221	56	16	56	21	The paragraph 8.3.3.3 does not reveal the state of the art of this practice. References seem limited and not very current. It would be interesting to describe the evolution of this practice over time and the differences between regions in relation to capacity building and access to technologies.	Accepted	Estela Santalla	Facultad de Ingeniería UNICEN www.fio.unicen.edu.ar	Argentina
24647	56	16	56	21	This section should not be titled "Landfill gas recovery" but rather "Reducing landfill methane emissions." The reduction of methane from landfills and dumps is indeed a priority. However, siting, designing, and constructing a new landfill with gas collection is a multiyear endeavor, with uncertain efficacy rates (see my comments on section 8.3.4.2). Landfill gas recovery should therefore not be included as an "immediate" action. For immediate action, source separation and treatment (composting or anaerobic digestion) of organic waste has been shown to be effective, cost-effective, and to show results within a matter of months.	Accepted	Neil Tangri	GAIA	United States of America
20285	56	17	56	21	Landfill emissions depend on the moisture content with affect the methane emissions. Hart and Ham (1983) showed that at about 40% moisture level the methane emissions in landfills without recirculation reach a maximum corresponding to equal molar quantities of CO2 and methane, whereas at or below 10% moisture levels only CO2 is produced due to methane oxidation. Spokas et al. (2015) note an annual zero to 100% variation of methane oxidation from field measurements of 129 engineered sites in dry temperate climate California many of which has been subject to long periods of sustained drought. This variation and field methane flows from flaring/ landfill gas extraction indicates significant inefficiencies in landfill gas collection. REFERENCES: Hartz KE and Ham RK (1983) Moisture level and movement effects on methane production rates in landfill samples. Waste Management & Research 1: 139-145, https://journals.sagepub.com/doi/pdf/10.1177/0734242X8300100116 ; Spokas K, Bogner J, Corcoran M, et al. (2015) From California dreaming to California data: Challenging historic models for landfill CH4 emissions.2015. Elementa Science of the Anthropocene 2015; 3:000051. DOI: http://doi.org/10.12952/journal.elementa.000051	Accepted	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
18591	56	23	56	23	Delete "Congestion pricing".	Accepted	Kirti Joshi	Tribhuvan University	Nepal
31343	56	23	56	34	The title of section 8.3.3.4 needs to delete congestion pricing which has already been discussed in previous section.	Accepted	YUAN GAO	Zhengzhou University	China
45827	56	24	56	34	Similar to previous comment, are there places that have done this? RPS is US focused. There is the biofuels obligation scheme in Europe, congestion pricing in Singapore and London	Accepted. This is an editorial mistake	Sabrina Dekker	Dublin City University	Ireland
25939	56		56		The title of 8.3.3.4 is not Congestion Charging	Accepted	Edoardo Croci	Bocconi University	Italy
14225	56	37	57	2	The paragraph does not reflect the problematic, the current state at worldwide level and the opportunities for cities in mitigation efforts regarding wastewater. It is not clear what meaning water heating (districtal, for daily consumption?). In my opinion, the focus of the paragraph is biased.	Yes, the section emphasizes the use of energy for water reuse and recycling--there should also be some statement of how water reuse and recycling is necessary to reduce the depletion of water sources, and water pollution--an increasingly necessary use of energy.	Estela Santalla	Facultad de Ingeniería UNICEN www.fio.unicen.edu.ar	Argentina
14223	56	36			Title: Water "reuse" instead of resuse	Accepted	Estela Santalla	Facultad de Ingeniería UNICEN www.fio.unicen.edu.ar	Argentina
45829	57	5	57	13	Singapore NewWater would be an excellent example of water demand management, Watershed management in British Columbia as well, particularly Metro Vancouver water restrictions.	noted. but no change needed as no information is provided.	Sabrina Dekker	Dublin City University	Ireland
1703	57	8	57	13	Some clarifications on effect of urban water systems management on energy use, especially in India, are needed.	noted, and found literature for furthering the revision.	Abdelkader Hamlat	University of Laghouat	Algeria
8829	57	15	57	23	It would be crucial to highlight the role of geographical location setting and planning for charging infrastructure (and their types) in different urban areas and structures that will create the least impact of electric vehicle charging on the distribution grids.	Noted. Will add the references.	Saygin Değer	SHURA Energy Transition Center	Turkey
31345	57	15	57	23	The section 8.3.3.7 has mentioned about the immediate impacts of EV incentives and charging infrastructures, however, it is only supported by the exmaple of bus fleets.	Noted. Will check	YUAN GAO	Zhengzhou University	China
1513	57	1	68	1	Ecological restoration, when implemented effectively and sustainably, contributes to climate change mitigation. It is a vital solution. It is surprising that such a solution is not included in this section ("medium- to long-term mitigation options"). Recently international standards and principles are formulated to guide ecological restoration including for the purpose of climate change mitigation . Publications include but are not limited to the following papers: (1) Gann G.D., McDonald T., Walder B., Aronson J., Nelson C. R., Jonson J., Hallett J. G., Eisenberg C., Guariguata M. R., Liu J., Hua F., Echeverría C., Gonzales E., Shaw N., Decler K., Dixon K.W., 2019. International principles and standards for the practice of ecological restoration . Second edition. Restoration Ecology 27 (S1): S1–S46. (2) Guan Y., Kang R., Liu J., 2019. Evolution of the field of ecological restoration over the last three decades: a bibliometric analysis. Restoration Ecology 27 (3): 647-660.	Rejected. This is not the comment to this section.	JUNGUO LIU	Southern University of Science and Technology	China
44247	57	26	73	37	Section 8.3.4 fails to include building solutions for reducing energy consumption, for example section 8.3.4.3 Reducing urban energy demand" does not mention building renovation and NZEBs. Although table 4 include some option related to energy efficiency in buildings.,	Partially accepted. Section 8.3.4.5 in the FOD on "reducing urban energy demand" will be revised with a focus on net-zero energy districts while a building focus will be provided with referral to Chapter 9 on "Buildings."	BERTOLDI PAOLO	European Commission	Italy
31351	57	26	98	22	The section 8.3.4 has discussed the medium- to long-term mitigation options and the section 8.3.5 has discussed their impacts on emissions. Would it be better to match the relevant topics?	Taken into account. Section organization in SOD will be improved.	YUAN GAO	Zhengzhou University	China
33715	57	26			This section contains important information that should supported and communicated with charts and/or tables, and elevated to Executive Summary, e.g. p58-L18 ff. –p59. It seems this sort of information should also be elevated to earlier in the section. Show what is possible.	Accepted. Information that is contained especially from line 18 (page 58) to 59 will be elevated to the Executive Summary and supported with additional illustrative support.	Debra Roberts	EThekwni Municipality	South Africa
47821	57	26			Mitigation options could be clustered by sector (transport, buildings, etc) for improved readability, with another sub-section on evidence from cross-sectoral analysis.	Taken into account. The chapter aims to emphasize a more integrated approach to urban systems while readability in the SOD will be improved.	Martino Tran	University of British Columbia	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4139	58	5	58	16	Here and in several other places in the chapter, there is a discussion of [local] energy systems. I think the chapter would however benefit from an explanation what smart local energy is. For this, I recommend the paper from Lund, H., Østergaard, P. A., Connolly, D., & Mathiesen, B. V. (2017). Smart energy and smart energy systems. Energy, 137, 556-565. It may also benefit from acknowledging that the term Smart Local Energy System (SLES) has emerged as one of the most popular in recent years (and especially in the UK), though other terms like Integrated Community Energy systems (ICEs) have also been used. Suggestions for future research should include investigating social acceptance of these systems, as they have just been introduced and that is a prominent research gap right now.	Accepted. Related reference will be included with additional content on smart local energy systems and integrated community energy systems, possibly with chapter box support.	Chad Walker	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
15117	58	18	58	20	One reference given in sperate bracket. Should be included woth the other two.	The parenthesis of the reference is corrected.	Levihn Fabian	KTH - Royal Institute of Technology	Sweden
47823	58	2			For Fig. 8.29 please clarify what key-word co-occurrence as a methodology tells us here. Plot needs some qualification. i.e. does co-occurrence imply multiple sectors were analyzed jointly, and results indicate that mitigation potential (or additional insight for further mitigation potential) is greater when multiple sectors are assessed together as opposed to individually?	Accepted. Co-occurrence implies that multiple keywords were addressed jointly, including representation of such studies that related to mitigation potential. Greater clarification will be provided including the mitigation potential of a collective view of urban systems.	Martino Tran	University of British Columbia	Canada
43123	58				Add section 8.3.3.8 for Sensetive urban trees plantation. "Urban trees represent an important element of site vegetation, it can improve the microclimatic performance of built environment, adapt existing urban forms to climate change, reduce energy consumption and carbon emissions. Tree microclimate is based on intercepting radiation and the evapotranspiration effect. The canopy parameters Leaf Area Index (LAI), and Leaf Area Density (LAD), contribute to canopy shading and to the circulation of water through tree roots-trunk-foliage system which leads to lowering air temperatures and bettering comfort levels inside and outside buildings if accompanied with urban fabric geometrical adjustments. Radiation interception occurs due to canopy blocking of short radiation from the upper hemisphere, whereas evapotranspiration occurs relying on the water content carrying capacity of the soil-tree-air. Evaporation happens from the surface of leaves to air, and transpiration happens from soil to stem and leaves according to the photosynthesis process. These processes results in increasing latent heat and decreasing of sensible heat within the tree leading to lowering air temperature, lessing heat gain for surrounding air, and in turn enhancing outdoor and indoor thermal comfort. Based on this, selection of urban trees can be based on thermal performance that depends on: (1) foliage characteristics; (2) total height and canopy geometry; (3) botanical aspects such as (type of soil, tree deciduousness, depth and radius of roots, and capability of bearing the hazards and harsh conditions), (Fahmy et al 2020, Fahmy et al., 2020)". Ref.: https://doi.org/10.3390/atmos11030236 - https://doi.org/10.1016/j.egy.2019.09.042 .	Partially accepted. Section 8.3.4.1 on "Nature-based solutions and blue-green infrastructure" includes relevant content on urban vegetation. The reference on "influence of urban canopy green coverage and future climate change scenarios on energy consumption of new sub-urban residential developments using coupled simulation techniques: A case study in Alexandria, Egypt" will be considered accordingly.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
15119	59	1	59	17	Most carbon capture (CCS) technologies include an energy penalty. Heat recovery from such processes can significantly reduce the cost and energy penalty of BECCS and CCS. Integration of carbon capture with industrial processes or CHP providing district heating to urban areas could thus avoid part of the challenge with carbon capture. This is an overlooked potential. We discussed this in Levihn et al (2019). https://doi.org/10.1016/j.egy.2019.09.018 .	Taken into account. The reference "Introducing BECCS through HPC to the research agenda: The case of combined heat and power in Stockholm" is reviewed.	Levihn Fabian	KTH - Royal Institute of Technology	Sweden
25123	59	19	59	44	Analysis is case specific - it should be clearly stated that similar practices may not be effective in all cities owing to local circumstances and capabilities	Noted. The comment appears to be a general comment for all climate mitigation options.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
43125	59	31			Please add the following para after (Vermeulen et al. 2018); "That is why Fahmy et al., (2019) studied how urban forms can be design on a climate responsive basis in which the thermal comfort a cumultaive parameter can represent a good design of the urban form geometry. Same author developed a methodology to couple the urban form passive design with the building passive design and has been tripled with the renewables in a so called Urban-Building-Renewables dimensions to generate the housing typology on an urban microclimate and building passiveness basis.". Ref. https://doi.org/10.3390/cli7010001 - https://doi.org/10.3390/atmos11030236 .	The first reference relates to implications of an "urban design comfort model on a pedestrian thermal comfort" while the second reference relates to a 5th generation of Egyptian sustainable cities. These and related references will be taken into account.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
37485	60	4	60	7	This sentence references three studies, but refers to three peruvian cities at the end of the sentence. It is not clear whether all three examples of mitigation potential are from these cities or not. If not, it should be made clear the context of the figures cited.	Reference placement is correct. The last reference (Bazán et al. 2018) relates to three cities that have 112 ton CO2eq and over 523 kton CO2eq per year of GHG emissions (https://www.sciencedirect.com/science/article/pii/S0048969717334228?via%3Dihub).	Michiel Schaeffer	Climate Analytics	Netherlands
45831	61	1	61	4	see Dekker 2018 Cities leading climate action for alternative	The book "Cities Leading Climate Action: Urban Policy and Planning" is taken into account while not publically available.	Sabrina Dekker	Dublin City University	Ireland
27431	61	2	61	2	Waste linkages to "Biogas production from co-digestion of MSW and wastewater sludge" and "Reducing, reusing and recycling municipal waste to divert waste fraction sent to landfill". These linkages are incorrect. Biogas can be produced from source-separated organics and from wastewater sludge but they do not need to be mixed. MSW cannot be biodigested to make biogas. The benefit of 3Rs is not reducing the amount landfilled but reducing demand for raw materials and associated GHG emissions.	Partially accepted. Co-digestion is given to involve the organic fraction of MSW such as in Grosser (2017) as clarified in lines 4-5 (page 97). The emphasis on "diverting waste fraction sent to landfill" is given to underline the linkage with land usage while a broader emphasis on reducing demand for raw materials is also relevant.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
1505	61	5	61	12	The discussion about NBS and blue-green infrastructure is too short and insufficient. In addiiton, there is no any reference to support the discussion. The definition of these terms should be clarified., E.g. NBS, green infrastructure. In addition, what are the difference between blue and green infrastructure? Palmer et al., (2015) compared grey infrastructure (human-built engineering projects) with green infrastrucute (ecosystem-based infrastructure), and concluded that green infrastructure is generally cost effective and can provide multiple benefits for the environments. The authors recommend integrated application of green and grey infrstrucure for water security purpose. Huang et al. (2020) shows that NBS could effectively mitigate urban flooding caused by high-frequency precipitation events, with additional economic, ecological and social benefits. However, NBS are less effective at helping cope with pluvial flooding caused by extreme precipitation events over a short period of time, while grey infrastructures also have limitations as a mitigation measure against extreme pluvial flooding. The authors thus recommend identifying flood risk management strategies by evaluating the performance of alternative combinations of NBS with grey infrastructures in preventing pluvial flooding in the cities. There are other important publicaitons related to green infrastructure to support the discussion in this section. (1) Palmer M.A., Liu J., Mattews J.H., Mumba M., D'Odorico P., 2015. Manage water in a green way. Science 349 (6248): 584-585. (2) Huang et al. (2020). Nature-Based Solutions for Urban Pluvial Flood Risk Management. WIRES Water. In Press.	Agreed- expanded	JUNGUO LIU	Southern University of Science and Technology	China

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
47825	61	6	61	12	For section 8.3.4.1 See refs for recent evidence of mitigation potential: He et al (2019) Co-benefits approach: opportunities for implementing sponge city and urban heat island mitigation, Kandya and Mohan (2018) mitigating urban heat island effect through building envelope modification, Qin (2015) a review on development of cool pavements to mitigate urban heat island effect, Feysa et al (2014) efficiency of parks in mitigating urban heat island effect: an example from Addis Ababa	Noted- will check and cite.	Martino Tran	University of British Columbia	Canada
45833	61	7	61	12	Are there examples that could be discussed like barcelona, green roofs and green walls etc.	Agreed- will add some examples.	Sabrina Dekker	Dublin City University	Ireland
1481	61	9	61	10	To more explicitly explain the mitigation of climate change by nature-based solution and blue-green infrastructure, it should add at least one example for the "literature". Add "For example, Palmer et al. (2015) addressed that integrating gray infrastructure with blue-green infrastructure or ecosystem function is critical to meet current and future water needs." after "these variables" in line 10. (Palmer, M.A., Liu, J., Matthews, J.H., Mumba, M., D'Odorico, P. (2015) Manage water in a green way. Science 349, 584 - 585.)	Agreed- will check/add this and other refs.	JUNGUO LIU	Southern University of Science and Technology	China
44899	61	10	61	12	Is identified as a key to adding here: increased evidence and awareness of the benefits of re-naturing cities with Nature Based Solutions(NBS) for combatting air pollution and mitigating and adaptation climate change and for improving health, well-being and resilience to the impacts of climate change. Furthermore, enhanced stakeholder and citizen ownership of the solutions through their effective and systematic involvement in co-creation processes for the development, implementation, monitoring and testing of the solutions and their integration in sustainable urban planning and design;	Noted- will expand the discussion.	Maria Carmen Garcia Mateo	MCG Research&Innovation Sustainability Architecture /Urban Planning	Spain
28303	61	12	61	12	Besides these direct contributions to carbon sequestration and climate regulation, blue-green infrastructure can also offset pressure on other land uses. For example, nature-based infrastructure has the potential to supplement food production and biodiversity conservation through the adoption of climate resilient food species for humans as well as wildlife (Sardeshpande and Shackleton 2020).	Agreed- will include/expand on this point.	Mallika Sardeshpande	Rhodes University	South Africa
27433	61	20	62	2	The references to the climate mitigation potential in the waste sector should start from the point of view of the Waste Hierarchy. Following this concept, it's clear that the primary opportunity for GHG reductions in the waste sector is through upstream avoided emissions: 3Rs. The next most important opportunity is avoided methane by not landfilling organics. WTE incineration is problematic because of fossil CO2 emissions.	Accepted	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
34601	61	21	62	2	this is very critical because in many cases, the mitigation failed to operate due to lack of maintenance/high capacity of human resources and the absent of waste separation at source.	Accepted	Ova Candra Dewi	Universitas Indonesia	Indonesia
24643	61	14	63	15	This entire section needs to be re-written. It does not reflect the current state of knowledge, either as reflected in the academic literature nor as understood by practitioners. It primarily focuses on waste-to-energy (without defining the term or technologies included), which is a minor component of the best mitigation strategies. The section is disorganized, jumping back and forth between different subtopics without any discernible structure. It does not convey any sense of priorities or significance to the actions described, and the examples seem chosen at random. I suggest replacing this section in its entirety. I have taken the liberty of drafting alternate text, which I am submitting separately (it is too large to fit into this spreadsheet).	Accepted	Neil Tangri	GAIA	United States of America
34605	61	14	63	15	all mitigation effort related to waste management (8.4.3.2) are lack of information: the power of social capital and the community. Waste separation is the key and technology/facilities are only the tools. This should be interrelated	Accepted	Ova Candra Dewi	Universitas Indonesia	Indonesia
42953	61	14	63	15	Section '8.3.4.2 Urban waste management': use of term "WTE" (waste to energy) should be checked for consistency. Please note that it is common practice to mean in particular incineration/ thermal treatment when referring to "WTE/ waste to energy", although some authors use the term to refer to all waste management pathways which include some form of energy recovery. However, in this section, use is not consistent. WTE is first used to refer to all energetic valorisation schemes, but then (in particular with the example of Copenhagen) this is just incineration.	Accepted	Sigrid Kusch-Brandt	University of Padua	Germany
47827	61	14	63	15	Given diversity of evidence suggest summarizing range of carbon mitigation potential for urban waste management at end of subsection.	Accepted	Martino Tran	University of British Columbia	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10023	61		63		<p>The draft does not provide a clear definition of “integrated policymaking” and “integrated municipal solid waste management”. It shall not be given for granted. This should explicitly place emphasis on the fact that the greatest mitigation potential is given by waste management hierarchy. Instead, most of the text focuses on the potential of energy recovery. I therefore find it misleading, since it seems to suggest that this is the best option for climate mitigation.</p> <p>First of all, IPCC shall acknowledge that if the overall generation of waste does not stop increasing, it will be difficult to reduce emissions. A comment in Nature argues that “Waste production must peak this century” (Hoorweg, 2013). However, the authors show that -if current trends continue- ‘peak waste’ will not happen this century. OECD countries could peak by 2050 and Asia-Pacific countries by 2075, but would be fast-growing in other regions. Using ‘business-as-usual’ projections, they predict that, by 2100, solid-waste generation rates will exceed 11 million tonnes per day - more than three times today’s rate. The figures given here for MSW are significant for the problems related to its management, and expected to increase. However, this is just a small percentage of the overall waste produced. For example, for the US, as a percentage of industrial waste, MSW is 3%. See : https://thetrashblog.com/2014/04/01/industrial-waste-vs-municipal-waste/ in the EU, municipal waste corresponds to only approximately 10% of the total amount of the overall waste generated, in terms of weight (EEA, 2000). Worldwide, there are very few comprehensive statistics about industrial waste. This is also because regulations often do not require industries to report on their non-hazardous waste. The GrassRoots Recycling Network (2000) has reported that “Few studies have documented how much manufacturing, mining, and energy related wasting could actually be eliminated for every ton of municipally generated discards reduced or recovered.” See http://www.grrn.org/assets/pdfs/wasting/WRUS.pdf</p> <p>Second, in relation to energy recovery, there are very clear conclusions offered by the study undertaken for the European Commission Environment Directorate General by AEA Technology to assess the climate change impacts of options for municipal solid waste (MSW) management in the EU: “The study has shown that overall, source segregation of MSW followed by recycling (for paper, metals, textiles and plastics) and composting /AD (for putrescible wastes) gives the lowest net flux of greenhouse gases, compared with other options for the treatment of bulk MSW.” See: https://ec.europa.eu/environment/waste/studies/pdf/climate_change_xsum.pdf</p> <p>These conclusions can easily be generalized for other regions. The same study highlights that one could assess the different waste management options also according to other impacts including health effects attributable to air pollutants such as Nox, SO2, dioxins and fine particles, emissions of ozone-depleting substances, contamination of water bodies, depletion of non-renewable resources, disamenity effects, noise, accidents, etc</p> <p>In this sense, see this report about air pollution from waste disposal in Europe. https://zerowasteurope.eu/downloads/air-pollution-from-waste-disposal-not-for-public-breath/</p> <p>Notably, the Clean Development Mechanism has distorted waste management policies because it compares incineration to land-filling, but does not take into account recycling. We therefore assist to a proliferation of incinerators across the Global South. These have led to contestations because of the risks associated to health effects, as well as because it undermines the livelihood of waste pickers. The Barcelona-based research project</p>	Accepted	Federico Demaria	Environmental Science and Technology Institute, Autonomous University of Barcelona	Spain
33717	61	6			This section will be developed further?	Accepted. Yes	Debra Roberts	EThekwini Municipality	South Africa
43129	61	6			Modify the title of the sub-section to be: "...green-blue infrastructures."	Accepted. Editorial	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
43127	61	12			Add the following para at the end of section 8.3.4.1.: "In a recent study, the effect of both green and blue infrastructure (GBI) has been investigated in present and under climate change projections of the AR5 in Alexandria, Egypt and revealed that using BI alone improved energy efficiency by (8.12%) followed by GBI (6.73%) and GI (4.78%).". Ref.; In press.	Rejected. Short space allocated, plus self referencing Col.	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
27435	62	2	62	4	<p>Infrastructures with a sustainability record may evolve over time into a lock-in that slows the emergence of more sustainable urban infrastructures. Waste to energy incineration causes a lock in effect at economical, institutional, technological and cultural level which needs to be included in this section. A study of waste incineration in the Göteborg Metropolitan Area, Sweden, serves as an illustrative case. Taking leads from Unruh (2000, 2002), four rationales of lock-in are identified in the case: institutional, technical, cultural, and material. The article describes how these rationales, one by one and in collaboration, lock-in waste handling in the Göteborg Metropolitan Area to incineration. Corvellec, Hervé, Maria José Zapata Campos, and Patrik Zapata. "Infrastructures, lock-in, and sustainable urban development: the case of waste incineration in the Göteborg Metropolitan Area." <i>Journal of cleaner production</i> 50 (2013): 32-39. https://www.sciencedirect.com/science/article/pii/S0959652612006531</p>	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27437	62	2	62	4	<p>It should be added that in fact, most of the developing countries have high percentage (40-70%) of organic matter with high moisture content, which make them unsuitable for waste to energy incineration (Khajuria et al, 2010; Agumuthu et al., 2007). Therefore, it cannot be said that ‘developing countries will need finance in the future’ - it needs to be deleted. Khajuria, Anupam, Yugo Yamamoto, and Tohru Morioka. "Estimation of municipal solid waste generation and landfill area in Asian developing countries." <i>Journal of Environmental Biology</i> 31.5 (2010): 649-654. Agamuthu, P., et al. "Sustainable waste management-Asian perspectives." <i>Proceedings of the international conference on sustainable solid waste management</i>. Vol. 5. 2007. Moreover, Bortoleto 2014 adds: many cities in developing and developed nations have chosen incineration as the most convenient solution for their waste-management systems. It reduces the volume of waste and energy recovery can be added as a bonus. But incineration is far away from being the solution for urban waste problems. Incinerators compare badly with recycling in terms of energy conservation. Recycling is three to six times more energy efficient than incineration (Young et al. 1994). Bortoleto, Ana Paula. <i>Waste prevention policy and behaviour: New approaches to reducing waste generation and its environmental impacts</i>. Routledge, 2014. https://scholar.google.co.uk/scholar?q=Waste+Prevention+Policy+and+Behaviour&hl=ca&as_sdt=0&as_vis=1&oi=scholar</p>	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27439	62	6	62	9	<p>The data about the Copenhagen incinerator is provided in this article by the industrial facility directly, therefore it has not undertaken an independent, scientific and peer-reviewed process, which is unacceptable.</p> <p>It's obvious as the data is accepted at face value and it raises several questions:</p> <p>a) 150 Kg of bottom ash for road construction are codified, according to the EU Waste Framework Directive, as backfilling, hence they do not qualify as recycling, and do not contribute towards related EU targets.</p> <p>b) since the incinerator is fed with household waste, not only from Copenhagen but also from other countries, since its huge capacity requires to import waste from other countries, it's impossible to know what type of waste enters the plant; therefore, the statement that 1 tone of waste produces 10-15 Kg of metals for recycling does not have credibility.</p> <p>c) the statement that the incineration process can produce clean water that can be safe to drink does not have any empirical evidence to back it up - unless there is a laboratory analysis certifying lack of contamination in the water, which so far is lacking.</p> <p>Furthermore, it is known that the incinerator plant Amager Bakke has faced important economical challenges given its large overcapacity - the fact that the plant requires waste imports from other countries t function shows it creates a lock in situation for Copenhagen to provide feedstock to the plant, and it compromises the city's ability to prioritise 3Rs strategies to reduce, reuse and recycle.</p> <p>In sum, this plant cannot be considered an example of sustainable energy or waste management. In the light of the above, it is recommended that the paragraph is eliminated.</p>	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27441	62	9	62	10	This paper quoted here is about Anaerobic Digestion. So, the wording of "WtE plant" is too generic and inappropriate. It should refer to AD explicitly. https://www.mdpi.com/2071-1050/10/2/368/htm	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27443	62	12	62	14	Waste prevention /reduction activities have the highest GHG savings potential. Include literature: Eunomia: The Potential Contribution of Waste Management to a Low Carbon Economy https://www.eunomia.co.uk/reports-tools/the-potential-contribution-of-waste-management-to-a-low-carbon-economy/ EIB: Circular Economy Guide https://www.eib.org/en/publications/the-eib-in-the-circular-economy-guide.htm	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27445	62	15	62	17	The paper quoted talks about Zagreb without empirical evidence - the WtE incinerator plant was cancelled in 2017, so the data provided does not have any empirical evidence. Update here: https://bankwatch.blogactiv.eu/2014/07/18/city-of-zagreb-still-playing-with-fire/ . Instead, it should be said that incineration with energy recovery is the most expensive residual treatment technology (Hoorweg 2012). Hoorweg, Daniel, and Perinaz Bhada-Tata. "What a waste: a global review of solid waste management." (2012). Also it should be added that the electricity generated by waste incineration has significantly higher greenhouse emissions than electricity generated through the conventional use of fossils such as gas (340 g CO2eq per kWh). Department for Business, Energy and Industrial Strategy: Valuation of Energy Use and Greenhouse Gas Emissions – Background documentation: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794738/background-documentation-guidance-on-valuation-of-energy-use-and-greenhouse-gas-emissions.pdf	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27447	62	24	62	29	This paragraph is incoherent and it is lacking a source: the ways described in which the waste sector reduce emissions are not accurate. Draft text: "Integrated municipal solid waste management can reduce emissions due to (i) avoided primary energy spending based on WtE measures, (ii) avoided emissions upstream in the supply chain of materials based on measures for recycling and the reuse of materials, and (iii) avoided emissions due to land use changes as well as emissions that are released into the atmosphere from waste disposal. Comment to point (i): if this refers to fossil fuel based electricity displaced by WtE plant, it would depend very much on the carbon intensity of the grid which is being displaced, and the type of WtE technology we are referring to. For example, it's been shown that the carbon intensity of waste to energy incineration in Europe is double than the average and will increase as the average grid decarbonises according to the climate goals of the EU. (ii) Yes, the most effective way of avoiding emissions is the decrease in primary materials use due to reuse and recycling activities. This should be explained as the most effective option to reduce emissions following the Waste Hierarchy. (iii) This sentence is completely incoherent, as one cannot avoid emissions due to land use (what actual emissions are saved?) while adding emissions to the atmosphere thanks to waste disposal.	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
10725	62	29	62	29	The following red text should be added to the draft text; In the cement industry, a cement kiln acts as WtE plant to utilize municipal solid wastes by contributing up to 20% CO2 emission reduction (Morimoto et al. 2006) and furthermore urban wastes such as waste plastics as alternative fuels (Y. Izumi, 2014*) *: Key Engineering Materials Vol.617 (2014) pp 50-58 Online available since 2014/Jun/24 at www.scientific.net © (2014) Transe Tech Publications, Switzerland doi:10.4028/www.scientific.net/KEM617.50	Taken into account.	NAOKI AOKI	Japan Cement Association	Japan
27449	62	31	62	32	Given the GHG emissions reduction accounting issues in the waste sector it should be described in what way this mitigation took place, what methodology was used.	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27451	62	32	62	34	The best mitigation strategies in the waste sector are upstream in the Waste Hierarchy: reduce waste, reuse and recycle. Madrid has a very poor record in that way, so it's recommended to delete the example of Madrid and replace it with an example of a city where there is a much higher record of GHG emissions savings thanks to 3Rs strategies. This is the case of San Francisco, for example, 51% of resources were recovered and saved virgin materials, with an equivalent of saving 672 kg CO2e each year, from the waste management systems. Zaman, Atiq Uz, and Steffen Lehmann. "The zero waste index: a performance measurement tool for waste management systems in a 'zero waste city'." <i>Journal of Cleaner Production</i> 50 (2013): 123-132. management systems in a 'zero waste city' https://www.researchgate.net/profile/Atiq_Zaman2/publication/261925208_The_zero_waste_index/links/0f317535f5bf0e8130000000.pdf	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27453	62	34	62	35	This sentence should be deleted as the article has not taken into account the basic principles of the Waste Hierarchy. The article fails to mention that waste incineration is at the bottom of the Waste Hierarchy, it fails to mention academic literature that found much bigger GHG emission savings in upstream strategies (see ref below). A discussion that recognises the Waste Hierarchy and upstream options as the most beneficial to climate change is needed instead. "Many cities in developing and developed nations have chosen incineration as the most convenient solution for their waste-management systems. It reduces the volume of waste and energy recovery can be added as a bonus. But incineration is far away from being the solution for urban waste problems. Incinerators compare badly with recycling in terms of energy conservation. Recycling is three to six times more energy efficient than incineration (Young et al. 1994)." Bortoletto, Ana Paula. Waste prevention policy and behaviour: New approaches to reducing waste generation and its environmental impacts. Routledge, 2014. https://scholar.google.co.uk/scholar?q=Waste+Prevention+Policy+and+Behaviour&hl=ca&as_sdt=0&as_vis=1&oi=scholar . Moreover, it's been found that "Our analysis shows that maximizing EFW generation potential does not result in greater GHG saving. A combination of food and green waste composting, recycling of metals, paper, glass and plastics while only landfilling waste fractions that are not recyclable may result in the best GHG savings. Furthermore, recycling of paper does not always achieve the best outcome; anaerobic digestion or composting may yield better results from an environmental and energy generation perspective. El Hanandeh, Ali, and Abbas El Zein. "Are the aims of increasing the share of green electricity generation and reducing GHG emissions always compatible?." <i>Renewable energy</i> 36.11 (2011): 3031-3036. https://www.sciencedirect.com/science/article/pii/S0960148111001613	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27459	62	39	62	40	This sentence should be re-edited to reflect the actual content of the article that is quoted, which is not about emissions from transport of waste, as the draft text says. The abstract of the paper reads: "This study examined the alternatives for composting of the organic waste generated in the city of Bauru, in the state of Sao Paulo, which does not have a composting plant, and analyzed the environmental impacts of seven scenarios: current situation, in which all organic waste is disposed at the landfill; dispatch of the organic waste generated in the city to the closest municipality having a composting plant; construction of a composting plant in Bauru; use of home composting for 10%, 25%, 60% and 90% of organic waste. (...). The results showed that home composting must be followed by a reduction in the organic waste collection days, in order to have a positive effect in the greenhouse emissions derived from transportation and collection. Also home composting has a greater potential to reduce carbon dioxide equivalent emissions per mass of waste composted in comparison with composting plants. The use of transfer station can have a positive effect on composting plants that are located in other municipalities." Oliveira, Luiza SBL, et al. "Environmental analysis of organic waste treatment focusing on composting scenarios." <i>Journal of Cleaner Production</i> 155 (2017): 229-237. https://repositorio.unesp.br/bitstream/handle/11449/178408/2-s2.0-84994824057.pdf?sequence=1	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27463	62	4	63	5	Moreover, the text should include a reference to the academic literature about social movements against waste incineration. See here (Davies, 2006, full reference at the end of this comment): "The linking of anti-incineration campaigns with environmental justice movements has grown in the last thirty years from small, isolated community actions against individual facilities to national and internationally organised networks of incineration opponents fighting battles with multinational incineration corporations and international governmental institutions (Walsh, E., Warland, R., Smith, D., 1997. Don't Burn it Here: Grassroots Challenges to Trash Incinerators. Penn State University Press). GAIA (Global Anti-Incineration Alliance/Global Alliance for Incinerator Alternatives), an international alliance of over 470 members from 71 countries, is currently lobbying the World Bank to stop funding incinerator developments and works to support communities targeted by the Bank for incineration. In addition national environmental justice organisations, such as Communities Against Toxics (UK), groundWork, Environmental Justice Networking Forum (both South Africa), Greenaction (USA), Forum for Environment Health and Corporate Responsibility (India) and the People's Task Force for Bases Clean-up (Philippines) all 'view the fight against wasting and burning as a struggle for environmental justice' (Manny Calozzo, GAIA, 2004, pers. commun.). There are interesting issues of scale inscribed within these movements that have been addressed in more detail elsewhere (see Boyle, M., 2002. Cleaning up after the Celtic Tiger: scalar 'Wxes' in the political ecology of Tiger economies. <i>Transactions of the Institute of British Geographers</i> NS 27, 172-194)." Davies, Anna R. "Environmental justice as subtext or omission: examining discourses of anti-incineration campaigning in Ireland." <i>Geoforum</i> 37.5 (2006): 708-724. https://s3.amazonaws.com/academia.edu.documents/54492111/j.geoforum.2005.06.00520170921-18002-d4gvi3.pdf?response-content-disposition=inline%3B%20filename%3DEnvironmental_justice_as_subtext_or_omis.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWOWYYGZ2Y53UL3A%2F20200304%2Fus-east-1%2F3%2Faws4_request&X-Amz-Date=20200304T130556Z&X-Amz-Expires=3600&X-Amz-SignedHeaders=host&X-Amz-Signature=f6119c9c21b1132169c5c7ee89c08fc9c60839417d26bd7f3ba89e1c71fcb919	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27461	62	31	63	5	This summary is incoherent. Delhi can reduce GHG emissions by only 7% but Madrid is already saving 88% of emissions, and cities can meet 50% of energy needs from waste (line 16)? These discrepancies are irreconcilable and speak to vast differences in accounting methods and assumptions in the literature. They should not be reported at face value.	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27455	62	43	63	1	This sentence should be re-edited to reflect the actual content of the article that is quoted, which is not about emissions from a systems approach to overall waste management in Delhi. The article focuses on city-scale food system actions and it discusses best options for food waste management in Delhi. It does not analyse the overall waste system in Delhi, nor does it refer to Delhi as a city that has a systems approach to waste management. What the article explains is that "improved food-waste management within the city would provide a 7% system-wide GHG reduction, which matches the GHG impact of preconsumer trans-boundary food waste reduction." Therefore the quote is misleading and should be re-edited to reflect the actual conclusion of the article. Oliveira, Luiza SBL, et al. "Environmental analysis of organic waste treatment focusing on composting scenarios." <i>Journal of Cleaner Production</i> 155 (2017): 229-237. https://pubs.acs.org/doi/abs/10.1021/acs.est.7b03176 .	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
34603	62	40			Only if you have the committed person/community as the motors, unless those facility will stuck	Taken into account.	Ova Candra Dewi	Universitas Indonesia	Indonesia
27457	63	4	63	5	The text should include a reference to the air pollution related to waste incineration. In the first place, waste incineration is known to produce toxic air pollution (fly ash) and toxic ashes (bottom ashes) - 1 ton of MSW produces approximately 0.3 ton of incinerator bottom ash (IBA). Qiao, X. C., et al. "Production of lightweight concrete using incinerator bottom ash." <i>Construction and Building Materials</i> 22.4 (2008): 473-480. These are inevitable byproducts of the waste-to-energy incineration process which should be recognised and included in the text. In the second place, despite regulations and monitoring (which vary in different regions and countries with different levels of efficiency), incinerators continue producing pollution above the recommended levels for public health safety. "PM [Particulate Matter] is a widespread air pollutant, present wherever people live. The health effects of PM10 and PM2.5 are well documented. There is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur. Since even at relatively low concentrations the burden of air pollution on health is significant, effective management of air quality aiming to achieve WHO AQG [World Health Organisation Air Quality Guidelines] levels is necessary to reduce health risks to a minimum. — Health effects of particulate matter. Policy implications for countries in eastern Europe, Caucasus and central Asia (World Health Organisation / WHO, 2013). The current WHO Air quality guidelines (AQG) provide exposure-response relationships describing the relation between ambient PM and various health endpoints. No specific guideline value was proposed as it was felt that a threshold could not be identified below which no adverse effects on health occurred. In recent years, a large body of new scientific evidence has emerged that has strengthened the link between ambient PM exposure and health effects (especially cardiovascular effects), justifying reconsideration of the current WHO PM Air quality guidelines and the underlying exposure-response relationships...Epidemiological studies on large populations have been unable to identify a threshold concentration below which ambient PM has no effect on health. It is likely that within any large human population, there is such a wide range in susceptibility that some subjects are at risk even at the lowest end of the concentration range. — Health Aspects of Air Pollution with Particulate Matter, Ozone and Nitrogen Dioxide - Report on a WHO Working Group. Bonn, Germany, 13-15 January 2003 (World Health Organization, January 2003)	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
27465	63	7	63	9	The text fails to add compost as a waste related product with important climate benefits.	Taken into account.	Mariele Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
1727	63	7	63	15	This comment is not necessarily linked to this particular section but in general to the waste section - could you include some findings on the use of agricultural waste in peri urban areas? In countries that are transitioning from rural to urban, there is a large amount of unprocessed agricultural waste.	Taken into account.	Aarsi Sagar	Global Green Growth Institute	Republic of Korea
27467	63	14	63	15	According to the text, WTE replaces biomass fuels, but there is no source and no further information about what type of WTE technology referring to, how and where this takes place, and how are the environmental benefits assessed. Waste-to-energy is a generic term that includes many different technologies with different climate change mitigation potential and therefore it cannot be used without further specification of what technology it's referring to.	Taken into account.	Maríel Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
1729	63	27	63	39	In discussing batteries for storage, could the chapter also include electronic waste? Not sure if this has been addressed elsewhere in the report, but just to think about since in about a few years time electronic batteries will be heading to the landfill along with solar panels and wind mills.	Noted. Will check	Aarsi Sagar	Global Green Growth Institute	Republic of Korea
47829	63	27	63	39	For discussion on V2G potential additional reference on potential of (V2G, V2H) I to minimise electricity peak load using UK case-study: Baruah et al (2014) energy system impacts from heat and transport electrification, ICE - Energy.	Noted. Will check	Martino Tran	University of British Columbia	Canada
5663	63	36	63	39	The following two references demonstrate and quantify the benefits of intelligently scheduled EV charging for reducing GHG emissions in urban-scale modeling studies. They offer more targeted support for the point made in this passage. Jones, E.C., Leibowicz, B.D., 2019. Contributions of shared autonomous vehicles to climate change mitigation. Transportation Research Part D: Transport and Environment 72, 279-298. Brozynski, M.T., Leibowicz, B.D., 2018. Decarbonizing power and transportation at the urban scale: An analysis of the Austin, Texas Community Climate Plan. Sustainable Cities and Society 43, 41-54.	Noted. Will add the references.	Benjamin Leibowicz	The University of Texas at Austin	United States of America
33719	63	13	64	15	It would be useful to consider using only either \$ or € in this report but not both.	Editorial	Debra Roberts	EThekwini Municipality	South Africa
46105	63	17	64	15	energy system integration does not reduce demand, just peak demand, or even more important demand in times when VRES are no available. While power-to-heat is main such tool, it is not even mentioned? Heat storage is cheap and we need lot of heating.	Noted. Will check	Neven Duic	University of Zagreb	Croatia
33721	64	7	64	7	Sounds prescriptive	Noted. Will rewrite	Debra Roberts	EThekwini Municipality	South Africa
10649	64	11	64	15	Some cases have been announced that PV may decrease productivity of plants. Considering this, I would like to suggest that the authors provide both positive and negative aspects of PV on productivity of plants.	Noted. Will check	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
33723	64	19	64	20	What will substitute the reduced demand from urban hinterlands? Improved urban agriculture? Reduced consumption?	Accepted. It is clarified that the focus on urban food systems in the paragraph is also the subject of this sentence. Eigenbrod and Gruda (2015) relates to urban horticulture.	Debra Roberts	EThekwini Municipality	South Africa
25125	64	23	64	23	Replace "Durban areas" with "urban areas"	Accepted. The typo is corrected.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
45835	64	23	64	23	Should be urban not Durban	Accepted. The typo is corrected.	Sabrina Dekker	Dublin City University	Ireland
45837	64	26	64	26	short showers not short baths	The percentages in the statement also require clarification in comparison to the given reference (Fisher-Jeffes et al. 2017).	Sabrina Dekker	Dublin City University	Ireland
10727	64	32	64	32	The following red text should be added to the draft text; ...(Tricia et. Al. in press) and concrete structures (Shinneider 2019).	Rejected. The suggested reference "concrete structures (Shinneider 2019)" is unclear.	NAOKI AOKI	Japan Cement Association	Japan
33725	64	23			Durban should be urban? If this is indeed about the city of Durban, then the whole sentence is not clear.	Accepted. The typo is corrected.	Debra Roberts	EThekwini Municipality	South Africa
33727	64	26			Short showers, instead of baths.	The percentages in the statement also require clarification in comparison to the given reference (Fisher-Jeffes et al. 2017).	Debra Roberts	EThekwini Municipality	South Africa
1483	65	14	65	14	Kraxner et al. (2016) suggested urban forest has a high potential contribution to the urban resilience, which may be provided as one of references after "Dense urban secondary forests can serve important contribution to CO2 concentration mitigation" in line 14. (Kraxner, F.; Aoki, K.; Kindermann, G.; Leduc, S.; Albrecht, F.; Liu, J.; Yamagata, Y. Bioenergy and the city—What can urban forests contribute? Appl. Energy 2016, 165, 990–1003)	Taken into account. The additional references are reviewed.	JUNGUO LIU	Southern University of Science and Technology	China
10651	65		65		I suggest that authors should give other example of Korea which has reliable values of carbon sequestration and tree density.	Taken into account. References will be diversified without referral to a particular context.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
33729	65				Include data from Africa e.g. Stoffberg Urban Forestry & Urban Greening 9 (2010) 9–14 Carbon sequestration estimates of indigenous street trees in the City of Tshwane, South Africa	Accepted. The suggested reference (https://www.sciencedirect.com/science/article/pii/S1618866709000648) and other recent references will be integrated into the relevant text.	Debra Roberts	EThekwini Municipality	South Africa
10653	66	11	66	11	Provide published year of Winbourne et al.	Further action: The reference "Winbourne et al." is also missing from the references.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
25127	66	16	66	16	Delete "but"	Accepted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
10729	66	20	66	20	The following red paragraph should be added to the draft text; Urban concrete structures such as building and highway can contribute to take up CO2 from the atmosphere during the life. The substantial GHG emissions reduction could be estimated between 15 and 27% of CO2 emissions during the cement production (Shinneider 2019).	Rejected. The suggested reference "concrete structures (Shinneider 2019)" is unclear.	NAOKI AOKI	Japan Cement Association	Japan
44249	66	21	66	28	Section "8.3.4.6Passivedesign and vernacular architecture" is very short and doe snot do justice to the many solutions to dramatically reduce energy demand in new and existing buildings. It is suggested to cross reference Ch.9.	Accepted. Chapter 9 on "Buildings" will be cross-referenced while providing additional support from the urban context.	BERTOLDI PAOLO	European Commission	Italy
45839	66	21	66	28	Vernacular Architecture needs more explanation	Accepted. Additional support from the urban context will be provided with cross-referencing to Chapter 9.	Sabrina Dekker	Dublin City University	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2197	66	29	66	29	Please, add the following sentence: "In addition, some building materials, such as mortars and concretes, are able to absorb carbon dioxide by a chemical process known as carbonation (Sanjuán et al 2018). Blended cements are able to uptake carbon dioxide from the atmosphere (Goñi et al 2010; Sanjuán et al 2018; Sanjuán et al 2020). Miguel Ángel Sanjuán, Esteban Estévez, Cristina Argiz, Daniel del Barrio. Effect of curing time on granulated blast-furnace slag cement mortars carbonation. Cement and Concrete Composites 90 (2018) 257–265. https://doi.org/10.1016/j.cemconcomp.2018.04.006 Goñi, S.; Gaztañaga, M.; Guerrero, A. Role of cement type on carbonation attack. J. Mater. Res. 2002, 17, 1834–1842. https://doi.org/10.1557/JMR.2002.0271 Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339	Taken into account. These and similar references will be integrated in the SOD.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12515	66	29	66	29	Please, add: "Mortars and concretes also are able to uptake carbon dioxide by carbonation (Goñi et al. 2002; Galán et al. 2010; Andrade and Sanjuán 2018; Sanjuán et al 2018; Sanjuán et al 2019). Blended cements are able to uptake carbon dioxide from the atmosphere (Goñi et al 2010; Sanjuán et al 2018; Sanjuán et al 2020; Xi et al. 2016; Pade and Guimaraes 2007; Andrade et al. 2018). Goñi, S.; Gaztañaga, M.; Guerrero, A. Role of cement type on carbonation attack. J. Mater. Res. 2002, 17, 1834–1842. https://doi.org/10.1557/JMR.2002.0271 Galán, I.; Andrade, C.; Mora, P.; Sanjuán, M.A. Sequestration of CO2 by Concrete Carbonation. Environ. Sci. Technol. 2010, 44, 3181–3186. https://doi.org/10.1021/es903581d Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. Sustainability 2018;10:4806. https://doi.org/10.3390/su10124806 Miguel Ángel Sanjuán, Esteban Estévez, Cristina Argiz, Daniel del Barrio. Effect of curing time on granulated blast-furnace slag cement mortars carbonation. Cement and Concrete Composites 90 (2018) 257–265. https://doi.org/10.1016/j.cemconcomp.2018.04.006 Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Xi, F.; Davis, S.J.; Clais, P.; Crawford-Brown, D.; Guan, D.; Pade, C.; Shi, T.; Syddall, M.; Lv, J.; Ji, L.; et al. Substantial global carbon uptake by cement carbonation. Nat. Geosci. 2016, 9, 880–883. https://doi.org/10.1038/NGEO2840 Pade, C.; Guimaraes, M. The CO2 uptake of concrete in a 100 year perspective. Cem. Concr. Res. 2007, 37, 1348–1356. https://doi.org/10.1016/j.cemconres.2007.06.009 Andrade, C.; Sanjuán, M.A.; Rebolledo, N. Reliability calibration by carbonation exposure class deemed-to-satisfy prescriptions of Spanish concretes. Concreto Construções 2018, 91, 97–102. Available online: http://bracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019).	Taken into account. These and similar references will be integrated in the SOD.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
33737	66	30	66	30	While interesting, the evidence used here indicated that SE has demonstrated some level of success in advanced economies. What is missing is whether if this success can/is being replicated in the not so advanced economies. It will also be helpful to consider more engagement on barriers to the SE.	Noted- will elaborate this point and/or add examples of sharing economy in developing cities.	Debra Roberts	EThekwini Municipality	South Africa
45841	66	31	66	34	There are over 1000 cities with bike sharing schemes, and some may have multiple systems, 8 is not representative.	Noted- will put this study into context, and add other studies that suggest more significant reduction (e.g. Cai Hua's paper on bike sharing system)	Sabrina Dekker	Dublin City University	Ireland
31347	66	30	68	6	The section 8.3.4.7 has discussed the definition, development and characteristics of Sharing Economy. Would it be better to delete the first paragraph which does not fit?	See above- will put this into context.	YUAN GAO	Zhengzhou University	China
31349	66	30	68	6	Would it be better to integrate the section 8.3.4.7 with section 8.3.3.2 which has also focused on sharing economy?	Noted- but the difference is in time frame.	YUAN GAO	Zhengzhou University	China
34607	66	21			need more info: what is vernacular architecture?	Noted- will add brief explanation	Ova Candra Dewi	Universitas Indonesia	Indonesia
33731	66	25			Re "local materials that are heat conserving or transfer heat" could you be more specific? What are these materials? For "cities that are yet to be built" would need a lot more information here to get something out of this text.	Agreed- will add specifics.	Debra Roberts	EThekwini Municipality	South Africa
33733	66	30			This section would benefit from editing. Meaning is not clear in several places.	Noted- will edit through.	Debra Roberts	EThekwini Municipality	South Africa
33735	66	30			An aspect of sharing is also the second hand trade which is significant in South Africa for instance, at every level. High quality discarded second hand clothes are imported from Europe and sold, there are Sell/Swap/Buy sites on social media where people sell furniture and appliance etc to each other, or offering them for free-to-collect. People donate to second hand shops... Very little goes to waste, things are re-used many times sometimes by many people. Waste pickers often find usable stuff at the dump site which they resell... This is worth discussing.	Agree this is a combined form of sharing and circular economy.	Debra Roberts	EThekwini Municipality	South Africa
10655	67	21	67	32	Provide references.	Noted- will do.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
10657	67	43	67	43	Replace "nitrogen oxide" to "nitrous oxide"	noted- will do.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
47831	68	1	68	6	Please clarify the logic and qualify statements in this last paragraph. E.g. is the first sentence suggesting even though there is insufficient evidence on the sustainability gains of SE, we should nonetheless pursue further investment into sustainable SE? The third sentence I think is getting at the proportion of vehicle use versus parking (20/80) and should be cited, but its not clear if increasing use of parked vehicles would have net carbon mitigation benefits? Please specify what privacy and safety issues are challenging for SE? Are there examples of taxes that have increased sharing?	Noted- will streamline.	Martino Tran	University of British Columbia	Canada

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25129	68	30	68	30	Delete "as a percentage of"	Accepted. delete	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
12995	69	1	72	1	cautionary note on table 8.4, as effects may not be additive, and hence there's as lot of uncertainty on the total potential.	taken into account: check with transport and buildings chapter.	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
33883	69				Table 8.4 see comment on consumerism for p26, L57. Also please consider this table in the light of avoided emissions for new developments particularly in developing countries. What options (especially leapfrogging) are there going forward, for growing and new cities in resource-poor situations?	noted. but no change needed as no information is provided.	Debra Roberts	EThekwini Municipality	South Africa
33885	69				This table is very useful in principle, but the information is not yet presented in an accessible form. What is also not yet clear is what the baseline is. For example eating a "healthy" diet can reduce emissions if the baseline is a high-meat diet, but not if the baseline is already healthy. Same for appliance use, vehicle use etc. So this table needs to be very clear on what country or population group this applies to. Is this at the city level? Global level? Household level?	taken into account: better presentation and format	Debra Roberts	EThekwini Municipality	South Africa
44251	70		70		table 8.4 feedback systems reduce also heating and cooling demand. You could cite the following paper Zangheri, P.; Serrenho, T.; Bertoldi, P. Energy Savings from Feedback Systems: A Meta-Studies' Review. Energies 2019, 12, 3788.	noted. check with buildings chapter	BERTOLDI PAOLO	European Commission	Italy
44253	73	36	73	37	This statement seems to contradict several studies showing the impact of information measures and policies to change the behaviour, including people belief, attitudes and norms. For example see for a summary of policies: Paolo Bertoldi, Chapter 4.3 - Overview of the European Union policies to promote more sustainable behaviours in energy end-users, Editor(s): Marta Lopes, Carlos Henggeler Antunes, Kathryn B. Janda, Energy and Behaviour, Academic Press, 2020, Pages 451-477, ISBN 9780128185674, https://doi.org/10.1016/B978-0-12-818567-4.00018-1 . (http://www.sciencedirect.com/science/article/pii/B9780128185674000181)	rejected as there is uncertainty.	BERTOLDI PAOLO	European Commission	Italy
18593	73	38	73	38	"Urban heat island effect" is missing in the subsequent discussions. Although because of climate change, UHI will get further pronounced, it is basically an effect of rise in impervious builtup areas in cities. Because of UHI, the energy demand for cooling will rise in cities.	Accepted. Section 8.3.4.1 on "Nature-based solutions and blue-green infrastructure" already emphasizes "reducing urban heat islands and urban energy demand through green and blue infrastructure" (lines 11-12, page 61) that will be further supported in the text.	Kirti Joshi	Tribhuvan University	Nepal
31353	74	8	74	8	Table 8.5 is hard to read.	Section 8.3.4.1 on "Nature-based solutions and blue-green infrastructure" requires re-organization. For example, the first sub-section has related aspects while the section heading of "Urban waste management" is broader. In addition, the next sub-section on "Reducing urban energy demand" is related but not limited to nature-based solutions in content. These can be revised for other sections.	YUAN GAO	Zhengzhou University	China
33739	74				How relevant are these examples from USA in general? How relevant is this Table? Also, 'elasticity' is a concept that is not generally understood and needs to be explained. Tables are major go-to elements they have to stand on their own.	Accepted. Table 8.5 will be removed and/or combined with other references if necessary. Text that emphasizes a particular country will be omitted.	Debra Roberts	EThekwini Municipality	South Africa
1985	75		81		Urban form topics - it would be useful to note that practitioners do not have criteria in education and certification to address these topics in planning and technical design. See Maxwell, K., S. Julius, A. Grambsch, A. Kosmal, L. Larson, and N. Sonti, 2018: Built Environment, Urban Systems, and Cities. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 438-478. doi: 10.7930/NCA4.2018.CH11	Good point to add--obstacles to implementation.	Ann Kosmal	U.S. General Services Administration	United States of America
5665	75	10	86	4	These sections on GHG emissions, urban land use, and spatial planning policies effectively summarize the empirical literature on these subjects, but it is very surprising that they do not cover the burgeoning literature that approaches these subjects using structural models to derive generalizable, analytical insights and either optimize or simulate the effects of various policy prescriptions. This literature should absolutely be acknowledged and summarized in this section, as it sheds light on the likely costs and benefits of different policy approaches. Here are some highly relevant references from the urban economics and operations research literatures: Borck, R., Brueckner, J.K., 2018. Optimal energy taxation in cities. Journal of the Association of Environmental and Resource Economists 5, 481-516. Gaigne, C., Riou, S., Thisse, J.F., 2012. Are compact cities environmentally friendly? Journal of Urban Economics 72, 123-136. Hirte, G., Tscharaktschiew, S., 2013. The optimal subsidy on electric vehicles in German metropolitan areas: A spatial general equilibrium analysis. Energy Economics 40, 515-528. Larson, W., Yezer, A., 2012. Energy footprint of the city: Effects of urban land use and transportation policies. Journal of Urban Economics 72, 147-159. Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. Cities 70, 135-152. Leibowicz, B.D., 2020. Urban land use and transportation planning for climate change mitigation: A theoretical framework. European Journal of Operational Research 284, 604-616. Zhu, Q., Leibowicz, B.D., 2020. Vehicle efficiency improvements, urban form, and energy use impacts. Cities 97, 102486.	Good point to add a section.	Benjamin Leibowicz	The University of Texas at Austin	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4997	75	10	98	22	In cities of developed countries, policies are implemented to reduce CO2 emissions. Particular vehicles are eliminated and the use of bicycles and public transport are encouraged. As well as the self-management of waste. Everything works fine because it is a matter of citizen culture.	Not clear what the reviewer recommends.	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
34609	75	11			my comment is the same with no. 5 (no format)	Not clear what the reviewer recommends.	Ova Candra Dewi	Universitas Indonesia	Indonesia
19541	76	25	76	31	Aren't there analysis of the causes for points (i) – (iii) ?	Noted, references added	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
25131	77	3	77	3	Delete "These can support ... prepared by Jin."	Ok, accept.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
31355	77	14	77	26	The section aims to compare the impacts of compact city and dispersed sprawl on energy consumption and emissions. However, it has only discussed the impacts compact city and has not mentioned anything about dispersed sprawl. Secondly, it also uses American cities as example and it would be better use some examples from other developing regions, especially Global south and informal urban areas which have been emphasized in previous sections.	The reviewer notes that we do not provide/focus on the impacts of sprawl—but the reductions in VMT-GHG in the USA from the various factors examined, use the scenario of sprawl to calculate the reductions.	YUAN GAO	Zhengzhou University	China
34611	77	14			my comment is the same with no. 5 (no format) and other similar title	Not clear what exactly about the heading the reviewer means.	Ova Candra Dewi	Universitas Indonesia	Indonesia
43131	77	23			Add the following para after (Lee and Lee 2014): " In this concer, adjusting urban form compactness has been studied through the research line of (Fahmy et al., 2009, 2016 and 2019) and revealed the compactness degree scale (CDS) to control the proposed clustered built-up volume of residential areas microclimatically from the urban core to the rural areas.". Ref.; https://doi.org/10.1016/j.buildenv.2009.01.010 - https://doi.org/10.3390/cli7010001 .	Thank you, reference considered	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
31359	78	1	78	26	The section 8.3.5.3 aims to discuss the spatial planning incitiatives. However, from line 1 to 26, it focuses on the impact of urban form or built environment on VKT and GHG emissions without mentioning anything about initiatives.	Noted. Valid comment. Also clarified how spatial planning is different from urban form.	YUAN GAO	Zhengzhou University	China
47833	78	1	78	35	For section 8.3.5.3 suggest adding specific findings from the references cited. e.g. Choi (2018) finds...provision of light rail reduces VMT (by how much?). Same comment for other refs cited in this section - indicate numerical value of findings.	Noted. Thank you	Martino Tran	University of British Columbia	Canada
46107	78	1	82	12	Heatroadmap Europe should be mentioned.	Not sure if this is directly relevant to spatial planning.	Neven Duic	University of Zagreb	Croatia
31357	78	14			spelling error: CO2 rather than CO2e	I checked the reference. CO2e is correct.	YUAN GAO	Zhengzhou University	China
1507	79	1	79	3	Please make the figure yourself. It is not recommended to directly copy the table to IPCC report.	Noted	JUNGUO LIU	Southern University of Science and Technology	China
33741	79				Where in the world is this table referring to? How relevant is this to a global audience? Please explain better in Table header.	Noted	Debra Roberts	EThekwini Municipality	South Africa
10659	80	2	80	3	It is only case in some countries with enough space and less population or less population density. I would like to suggest that the authours reconsider including this case in the Chapter 8.	This can apply to many countries. Need to be discussed.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
19543	80	18	80	20	HV and EV may not emitt much CO2 in congestion.	Text revised to include more references	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
47769	81	4	81	4	Social networks and appropriate communication strategies may play an essential role (Vicari, R., Tchiguirinskaia, I. and Schertzer, D. (2018) 'Climate risks, digital media, and big data: following communication trails to investigate urban communities' resilience', Natural Hazards and Earth System Sciences Discussions, pp. 1–19. doi: 10.5194/nhess-2018-200.)	The suggested references seem to be focused on resilience and not mitigation.	Daniel Schertzer	Ecole des Ponts ParisTech,	France
5667	81	18	81	37	The following very recent reference would be a highly relevant article to cite in this section, as it considers the likely effects of automated vehicles on urban form. Larson, W., Zhao, W., 2020. Self-driving cars and the city: Effects on sprawl, energy consumption, and housing affordability. <i>Regional Science and Urban Economics</i> 81, 103484.	Relevant paper. Can be added.	Benjamin Leibowicz	The University of Texas at Austin	United States of America
27993	82	38	82	40	IPCC states, "Integrated scenarios across sectors at the local level can decouple resource usage from economic growth (Hu et al. 2018) and enable 100% renewable energy scenarios (Zhao et al. 2017; Bačeković and Østergaard 2018)." The following paper also appears appropriate here, since it discusses a transition across all energy sectors in 53 towns and cities: Jacobson, M.Z., M.A. Cameron, E.M. Hennessy, I. Petkov, C.B. Meyer, T.K. Gambhir, A.T. Maki, K. Pflieger, H. Clonts, A.L. McEvoy, M.L. Miccioli, A.-K. von Krauland, R.W. Fang, and M.A. Delucchi, 100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for 53 towns and cities in North America, <i>Sustainable Cities and Society</i> , 42, 22-37, doi:10.1016/j.scs.2018.06.031, 2018.	Noted. The lit will be checked	Mark Jacobson	Stanford University	United States of America
47835	82	13			For section 8.3.5.4 lots of evidence cited, but would be useful to clarify if CO2 reductions are based on empirical evidence or modelling scenarios. Also worthwhile to discuss assumptions and/or limitations of the work cited here.	Accepted partially. Text substantially revised	Martino Tran	University of British Columbia	Canada
33743	82	27			Does this "urban development" refer to building of new cities? If yes, please ensure there is detailed information for African and Asian countries that will have to build new cities. Simple list of options as in this paragraph is not enough, it needs some further details.	Accepted. Need to clarify	Debra Roberts	EThekwini Municipality	South Africa
19545	84	21	84	26	I feel much part is devoted to the emission from commuting transportation and its improvement considering urban spatial structure in this chapter. However, style of working is rapidly changing towards so-called "tele-work", due to recent outbreak of novel corona virus. There are some literatures dealing with this subject including transformation of workstyle. (e.g. https://pdfs.semanticscholar.org/e8ec/86142f83e9362d71be7df5428ed1c8a939a6.pdf , https://www.readkong.com/page/the-costs-of-transport-on-the-environment-the-role-of-3439926) This subject should be taken up in some part in this chapter.	Comment aimed at 8.3.5.5 but more general: says much of the larger section is focused on emissions from commuting transportation and how we can reduce GHG emissions by improving urban spatial structure; points out that COVID's effect may transform commuting patterns and that we should address this.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
45843	84	28	84	28	Perhaps covere in 8.3.5.4	8.3.5.6 has no text yet, only a heading: Transportation, land use, and linkages with buildings. Reviewer suggests that maybe already covered in 8.3.5.4, but the section referenced is more general, systems oriented. Will need to check.	Sabrina Dekker	Dublin City University	Ireland
34613	84	21			the existence of TOD may decrease the time efficiency which also relates to emission reduction? Add table/figure of TOD strategy, will help - like in page 85 line 31	The first point in the comment is not clear, but also recommends a table related to the point made on lines 31-33, p. 85 that summarizes the potential reduction of GHGs through TOD and low-impact green development. But we have covered the connection between the 5Ds, which are directly connected to TODs in 8.3.5 and other places	Ova Candra Dewi	Universitas Indonesia	Indonesia

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34615	84	28			blank? - then erase	Notes the lack of text under heading 8.3.5.6 and advises to delete the section. Maybe so.	Ova Candra Dewi	Universitas Indonesia	Indonesia
33745	84	30			This section appears to hold a lot of very useful practical information but the language is not accessible. Please use less jargon and more plain language. For example 'brownfield redevelopment' – is building on land that is already degraded from previous use. What is 'strategic infill development'?	Accepted. Need to check some terminologies and make them more general/consistent/understandable	Debra Roberts	EThekwini Municipality	South Africa
33747	84	30			Can some of these concepts in this section be augmented with schematics?	Accepted	Debra Roberts	EThekwini Municipality	South Africa
43133	84				Add the following paragraph at the end of page 84: "Furthermore, the integration between the residential clustered urban form and the green morphology over a city transect (GreenSect) ameliorates heat stresses and in turn reduce domestic energy consumption and carbon emissions, (Fahmy et al., 2019)." Ref.: https://doi.org/10.3390/ci7010001 .	Rejected. More references added to provide a balanced assessment	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
12517	85	14	85	14	Please, add the following sentence after (Zhan et al. 2018b): " It should be considered that the selection of the cement type will promote the carbon dioxide absorption (CEMBUREAU 2020; Sanjuán et al 2019). New cement constituents will increase the durability of the concrete structures and improve the carbon dioxide absorption (Argiz et al 2014; Argiz et al 2017)." CEMBUREAU 2020. https://lowcarboneyconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. <i>Energies</i> 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Cristina Argiz; Miguel Ángel Sanjuán; Esperanza Menéndez. Coal Bottom Ash for Portland Cement Production. <i>Advances in Materials Science and Engineering /Volume 2017 (2017)</i> , Article ID 6068286, 7 pages. https://doi.org/10.1155/2017/6068286 C. Argiz, E. Menéndez, A. Moragues, M. A. Sanjuán. "Recent advances in coal bottom ash use as a new common Portland cement constituent". <i>SEI - STRUCTURAL ENGINEERING INTERNATIONAL</i> , 2014. Vol 24 Nº 4, pp. 503-508. http://dx.doi.org/10.2749/101686613X13768348400518 .	Rejected. More references added to provide a balanced assessment	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
2199	85	19	85	19	Please, add the following sentence: " In addition, the selection of the type of cement is essential to enhance the carbon dioxide uptake (CEMBUREAU 2020; Sanjuán et al 2019). New cement constituents will increase the durability of the concrete structures and improve the carbon dioxide absorption (Argiz et al 2014; Argiz et al 2017)." Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. <i>Energies</i> 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Cristina Argiz; Miguel Ángel Sanjuán; Esperanza Menéndez. Coal Bottom Ash for Portland Cement Production. <i>Advances in Materials Science and Engineering /Volume 2017 (2017)</i> , Article ID 6068286, 7 pages https://doi.org/10.1155/2017/6068286 C. Argiz, E. Menéndez, A. Moragues, M. A. Sanjuán. "Recent advances in coal bottom ash use as a new common Portland cement constituent". <i>SEI - STRUCTURAL ENGINEERING INTERNATIONAL</i> , 2014. Vol 24 Nº 4, pp. 503-508. http://dx.doi.org/10.2749/101686613X13768348400518 . CEMBUREAU 2020. https://lowcarboneyconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Rejected. More references added to provide a balanced assessment	Miguel Angel Sanjuán	Technical University of Madrid	Spain
33749	85	18			Please include rammed earth.	Noted. Check the lit.	Debra Roberts	EThekwini Municipality	South Africa
33751	85	28			Please elaborate on the star shaped city – is that where agricultural land penetrates deeply into built up areas? Please consider in light of new city design in developing countries.	Accepted partially. Star-shaped cities are pretty much a common observation and recommendation in both developed and developing contexts. We may present an image.	Debra Roberts	EThekwini Municipality	South Africa
33753	85	33			Re 'ferry transport' an extremely interesting question which has not been addressed is: how did cities in developed countries manage to do things, before they replaced everything with fossil fuel power? E.g. one horse pulling a truck-sized barge. There is a huge treasure trove of ingenuity in vintage and mechanical technology which could be re-invented and updated with modern technology. Or maybe it fits into section 8.3.5.11	Rejected. Technology is rather off-topic in this section. Here, "oriented development" matters	Debra Roberts	EThekwini Municipality	South Africa
5669	86	1	86	4	The following reference is highly relevant to this section on the potential for urban land-use controls to reduce GHG emissions. It uses an urban spatial equilibrium model to simulate the effects of zoning and smart growth regulations on emissions via their impact on urban form, both within and across cities. Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. <i>Cities</i> 70, 135-152.	We will review this reference and find a suitable place to cite.	Benjamin Leibowicz	The University of Texas at Austin	United States of America
1509	86	20	86	23	Please make the figure yourself. It is not recommended to directly copy the table to IPCC report.	Accepted. All tables will be redrawn as tables, combined with other references or included for comparative figures in the SOD.	JUNGUO LIU	Southern University of Science and Technology	China
19547	86	21	86	23	What are the numerals at left most column?	Accepted. The numbering is irrelevant and will be addressed in the SOD if Table 8.7 is maintained.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
10661	86		86		Delete "Table 8"	Accepted. Table 8.7 will be deleted.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
43655	86	20			The table is problematic. Each specific dimension deserves more scrutiny. For example, autonomous driving GHG emission effects depend on about 10 specific (regulatory) issues, as explained by Wadud et al 2016 https://www.sciencedirect.com/science/article/pii/S0965856415002694 . for discussion of shared mobility and digitalization of mobility see also https://www.cambridge.org/core/journals/global-sustainability/article/leveraging-digitalization-for-sustainability-in-urban-transport/9322C52E379793B7C4A41682EC99DB6A	Accepted. Table 8.7 is omitted and the complexities that are suggested in the references are integrated into the text.	Felix Creutzig	MCC Berlin	Germany
33887	86				This table talks about reductions. Please include a description of the baseline, what sort of city are we talking about? Where in the world does this apply? Is Smart City the way to go when building new cities in the Global South? Is there information that can be added to this table to make it more widely applicable?	Accepted. Table 8.7 is omitted and the complexities of smart cities may be considered for additional discussion in the text.	Debra Roberts	EThekwini Municipality	South Africa
5671	87	1	87	4	The following reference specifically models the effects of shared autonomous vehicles on GHG emissions in an urban-scale case study. It highlights their ability to accelerate the market adoption of electric vehicles and enable them to charge intelligently in response to time-varying marginal emissions factors in electricity generation. It would therefore be a very relevant addition to the research referenced in the Boxes on Autonomous Vehicles and Ridesourcing. Jones, E.C., Leibowicz, B.D., 2019. Contributions of shared autonomous vehicles to climate change mitigation. <i>Transportation Research Part D: Transport and Environment</i> 72, 279-298.	Taken into account. The suggested reference (https://www.sciencedirect.com/science/article/pii/S1361920918310861) and similar references are considered in the text.	Benjamin Leibowicz	The University of Texas at Austin	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10663	87	2	87	2	Replace "above" to "below"	Accepted. The typo is corrected.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
19549	87	2	87	2	What is "ha" at fifth line in this box?	The word should have been "has."	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
19551	87	3	87	5	Why are these three out of 13 smart city solutions written in the text? Will all the 13 solutions be written in box in SOD?	Accepted. The content will be re-considered in the SOD.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
10665	87	2	87	2	Replace "ha" to "has"	Accepted. The typo is corrected.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
20283	87	11	90	12	Disappointed that there is no clear methodology or schematic for identifying emission savings or hierarchies to assist CE designers. The European CE systems comes closest to identifying primary (recyclables returned to original product manufacture), secondary reuse in another product or tertiary (mitigation of emissions or conversion to energy, fuel, carbon ect) (Dumble & Whitaker 1998). Within these categories are hierachies (Lansink 2017). A simple pictorial would suffice with each one having different emission mitigational impacts. For example burning residual waste with biodegradable carbon will release CO2 that would have been emitted over 20 ro 50 years if landfilled (albeit as methane and CO2). Incinerating plastic waste releases CO2 that would have stored in the plastic that may have remained stored for over 500 years (lower temperature thermal conversion to fuel or char may mitigate some of this). Waste collection systems are the most critical in ensuring maximum efficiency as are waste infrastructure (Location, Transport emissions/ type of transport (FF or renewable fuel) and type of infrastructure/process emissions) that acts to further improve quality of recyclables and remove pollutants from the collected waste recyclables. Climate also has an impact where municipal solid waste disposed in California with moisture levels below 10% result in any methane generated being oxidised to CO2 (Hartz and Ham 1987). Also no mention or introduction of financial models to encourage or measure sustainable practices such as carbon tax or virgin raw material tax (e.g Dumble 2015, accessed 9/2/2020 at https://twitter.com/PaulDumble/status/681820821837475840) - though I accept this may be discussed later in this document. Other References: Dumble, P., Whittaker, D., (1998): Towards sustainable waste management? IWM proceedings, July, p23-26 Lansink, A. (2017). Challenging Changes, Connecting Waste Hierarchy and Circular Economy. LEA Nijmegen, the Netherlands. ISBN/EAN 978-90-821783-5-7 NUR 971, 398.	Rejected- beyond the scope of the assessment	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
26621	87	11			include energy in the title.	Noted- will do.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
26623	87	13			before recycling add 'reuse'. Its part of the circular economy principles. We can reuse waste heat.	Agreed- will be added.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
44255	88	16	88	21	The European Commission has adopted a new Circular Economy plan in March 2020 available at https://ec.europa.eu/environment/circular-economy/index_en.htm	Noted- will be updated.	BERTOLDI PAOLO	European Commission	Italy
33755	89	6	89	12	If figure 8.31 is misleading, what is the value of replicating it here taking up valuable space? A preferred route will be to develop a modified version of the figure based on the critique rather than replicating what you already know does not capture the nuances of the CE	Agreed- will drop or modify.	Debra Roberts	EThekwini Municipality	South Africa
10667	89		89		Delete "Fig. 2" and revise the title of Figure 8.3.1	Noted- modified.	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
34617	89	4			naming double title for the figure? Figure 2 and Figure 8.31	Noted- modified.	Ova Candra Dewi	Universitas Indonesia	Indonesia
45845	90	3	90	3	Learned something new! I like this.	Thank you.	Sabrina Dekker	Dublin City University	Ireland
20287	90	3	90	12	A single sentence could be used to describe Urban Mining line 4 to 5 and included as subset of industrial symbiosis used elsewhere in this chapter 8.	Agreed- industrial symbiosis needs to be separated. Also cite Graedel paper on urban mining.	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
26625	90	3	90	12	Urban mining applies to energy and the urban heat island effect. Reference The geothermal potential of urban heat islands. Ke Zhu1, Philipp Blum2, Grant Ferguson3, Klaus-Dieter Balke1 and Peter Bayer4. Published 12 October 2010 • IOP Publishing Ltd	Rejected. Energy and heat island is not directly relevant to urban mining here.	Peter North	Calorem Ltd, Imperial College (part-time PhD student)	United Kingdom (of Great Britain and Northern Ireland)
1511	90	13	93	13	Huang et al. (2020) reviewed different types of NBS including water sensitive urban design and sponge city development in China (Table 1 and relevant texts). The authors thus recommend identifying flood risk management strategies by evaluating the performance of alternative combinations of NBS with grey infrastructures in preventing pluvial flooding in the cities. Hu et al. (2019) synthesized trade-off analysis of flood control solutions in cities under future deep uncertainty by considering both green infrastructure and grey infrastructure. This research indicates that to conduct a successful synthesized trade-off analysis of alternative flood control solutions under future deep uncertainty is bound to be a knowledge co-creation process of scientists, decision makers, field experts, and other stakeholders. (1) Huang et al. (2020). Nature-Based Solutions for Urban Pluvial Flood Risk Management. WIREs Water. In Press. (2) Hu H., et al., 2019. Synthesized trade-off analysis of flood control solutions under future deep uncertainty: An application to the central business district of Shanghai. Water Research, 166, 115067.	Noted- will include the refs here or in the NBS section.	JUNGUO LIU	Southern University of Science and Technology	China
44423	91	31	91	32	Rather than defense structures, which adopts an outdated military-inspired language, these are hard/grey infrastructures, or mitigation structures, or DRR structures	Noted- will be rephased.	Urbano Fra Paleo	University of Extremadura	Spain
5221	91	35	91	39	The official abbreviation in MOHURD	Noted- changed.	Andreas Oberheitmann	FOM University of Applied Sciences	Germany
19553	91	19	93	12	Why is "Sponge city approach" a part of circular economy? Most of these paragraphs are not mitigation but adaptation.	Agree- this subsection should go to NBS section.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
33757	91	19			Sponge city concept is highly relevant for African drylands. Please discuss in the context of low economic resources.	Noted- will be addressed.	Debra Roberts	EThekwini Municipality	South Africa

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18595	92	20	92	20	Suggestion in []: "The second is reducing loss and damage by flood control [thereby resulting into savings in terms of carbon-intensive replacement or renovation works/costs."	Noted- rephrased.	Kirti Joshi	Tribhuvan University	Nepal
20289	93	21	93	23	The sentence "For example, food production takes place in rural areas, but nutrient-rich wastes are emitted and processed in urban areas, and thus rural areas do not benefit from the use of these natural wastes that can sustain food production, thus severing the traditional feed-back loops". Would this sentence be better as "For example, whilst food production takes place in rural areas, nutrient-rich wastes are treated or disposed in urban areas, depriving rural areas of the use of these natural wastes to sustain food production."	Noted- rephrased.	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
27469	93	21	93	24	Add reference to treatment method of organic waste such as aerobic composting, which produces a carbon- and nutrient-rich soil amendment but also some NOx emissions; anaerobic digestion, which has been successfully employed at small scales to produce usable methane gas; and animal feed (Wilson 2015). Wilson, David Curran, et al. Global waste management outlook. UNEP, 2015.	Noted thank you. Literature has been checked and added where appropriate	Marief Villella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
20291	93	36	94	23	There is nothing that shows the details (Users/systems/ regulation/waste attributes) of smart ICT systems. The following addition to the text is included in a cropped Figure 26 in UNEP(2019) (I can send you a copy, its due to launched in April 2020 by UNEP, can be obtained from CEDARE, Cairo). So please consider adding Figure 26 (UNEP 2019) with the script "Figure: Smart Waste Systems (UNEP 2019)" and "The chart in Figure.. shows the interaction of waste producers , operators with smart waste ICT components integrating with regulatory and waste attributes that through choices or interactions will monitor and control data on waste arisings, recyclables and waste emissions". (Vatn 2005, UNEP 2019). REFERENCES: UNEP (2019) Waste Management Outlook for West Asia, UNEP/IETC/ISWA/CEDARE, Chapter 5, Figure 26, ISBN No:978-92-807-3767-7, December 2019: Vatn, A. (2005). Institutions and the Environment. Cheltenham, UK: Edward Elgar Publishing Ltd.	Noted thank you, references expanded	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
31361	93	35	98	22	The scctions 8.3.5.11, 8.3.5.12 and 8.3.5.15 are all relevant to technologies and would it be better to integrate them?	Noted thank you. Section substantially revised	YUAN GAO	Zhengzhou University	China
33759	93	28			The water sensitive city was discussed before.	Agree--also the paragraph pointed out is not directly related to the urban-rural linkages.	Debra Roberts	EThekwini Municipality	South Africa
31595	94	24	94	25	Some emergent food access solutions could also affect the innovative urban design, reducing the use of land and will be linked to new coming building design. Due to the lack of fertile land, we are going to attend to people migrations to urban areas. Cities are developing new designs, mono-centric or poly-centric, and transit and flows will be primary. If poly-centric cities seem to give the best performances in terms of reduction of emission, transport management and people commuting flows, urban design needs should consider either food access solutions change and relative modification to commuting flows. Urban design should be based on transit development paths (Transit Oriented Development TOD 8.3.5.5), meanwhile, it should also consider the direction of flows. In effect, if transit should naturally be considered centrifugal and urban design should follow that direction, from the center to borders, we should consider either all massive centripetal migrations to urban areas and micro commuting generated by new points of food production. Urban areas will assist in new emergent solutions to food production, as urban, roof, indoor and even vertical farming. All these food growing solutions will transform transport and logistics flows related to food access and food security. If some of those solutions involve both back and forth flows and transit directions, Vertical Farming, for example, should be resilient to traffics, logistics and transport, at least to Food Factory. Completely sufficient in terms of growing, Vertical Farms or Factories will generate transport flows from them to the inner city, inside boundaries. And, in a way, they could reduce sensibly food transport from outside urban areas, as they enable greens harvesting inside cities. Urban design should consider the scale generated by food access solutions, either general food distribution and many micro food supply chains and it should evaluate the right scale for these solutions. A building block of about 2,000 sqm could feed a group of about 10,000 people all-year-round. In the same way, a block of 500 sqm could feed a huge number of people, as 200 sqm on a basement or top floor of a residential block could represent a primary font of food production for the residents of that block. In terms of emissions, in particular carbon dioxide, Indoor and Vertical Farming solutions need a huge amount of CO2 for growing processes. In particular, Vertical Farming must create clear carbon dioxide to support short and fast-growing cycles. This could be analyzed as a primary key to create circular management of energy and related emissions. And, in terms of Urban Design, designers should evaluate the right cities areas to place Indoor Food Factories, either so close to the commuting flows of metropolitan people and next to other clear dioxide production plants that, on the other hand, could have issues to digest emissions.	Noted thank you, references expanded	Bernardo Cigliano	SIX srl	Italy
47839	94	26	94	38	Is there sufficient evidence to claim major mitigation potential here? In line 37 - 38 the low evidence base seems contradictory with the opening sentence about major mitigation potential.	Noted	Martino Tran	University of British Columbia	Canada
12519	94	31	94	31	Please, add the following sentence after "...including...": "..., new type of Portland cements able to uptake carbon dioxide (ternary cements) with a higher proportion of constituents (industrial wastes - circular economy-) (Wang 2019; CEMBUREAU 2020; Sanjuán et al 2019; Argiz et al 2014; Argiz et al 2017)." Wang, X.-Y. Impact of Climate Change on the Optimization of Mixture Design of Low-CO2 Concrete Containing Fly Ash and Slag. Sustainability 2019, 11, 3394. https://doi.org/10.3390/su11123394 CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Cristina Argiz; Miguel Ángel Sanjuán; Esperanza Menéndez. Coal Bottom Ash for Portland Cement Production. Advances in Materials Science and Engineering /Volume 2017 (2017), Article ID 6068286, 7 pages. https://doi.org/10.1155/2017/6068286 C. Argiz, E. Menéndez, A. Moragues, M. A. Sanjuán. "Recent advances in coal bottom ash use as a new common Portland cement constituent". SEI - STRUCTURAL ENGINEERING INTERNATIONAL, 2014. Vol 24 Nº 4, pp. 503-508. http://dx.doi.org/10.2749/101686613X13768348400518 .	Editorial	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
2201	94	32	94	32	Please, add the following sentence after "...solar housing...": "..., new type of cements with a higher proportion of constituents such as fly ash, blast-furnace slags, and so on, to reduce the clinker factor and enhance the carbon dioxide uptake of the concrete (Wang 2019; Sanjuán et al 2019)." Wang, X.-Y. Impact of Climate Change on the Optimization of Mixture Design of Low-CO2 Concrete Containing Fly Ash and Slag. Sustainability 2019, 11, 3394. https://doi.org/10.3390/su11123394 Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346	Editorial	Miguel Angel Sanjuán	Technical University of Madrid	Spain
34619	94	23			in terms f emerging technology and waste management, there is Material Recovery Facility which will help to improve the Reduce, Reuse and Recycle program, thus reduce the organic waste which will be landed on the landfill. It is a community based initiative - can be also relate to social-technology innovation (I can give the paper if its needed)	Rejected. This is not the comment to this section.	Ova Candra Dewi	Universitas Indonesia	Indonesia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16309	94	25			In Section 8.3.5.12 Socio-technological innovations, consider adding a detailed description of advances in sustainability education including the movement for school gardens, urban forestry and other improvements in other sectors, e.g. recycling, that have been driven by school-based approaches.	Rejected. This is not the comment to this section.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
47837	94	25			Section 8.3.5.12 seems to intersect/overlap with other sections (smart cities, technological innovations, intersectoral linkages. Perhaps integrate these subsections? Also, should define what is meant by a socio-technological innovation in this context? Is this a focus on early adopters of technology and policy, etc.?	Editorial	Martino Tran	University of British Columbia	Canada
33761	94	32			What about old/ancient/traditional construction materials?	Editorial	Debra Roberts	EThekwini Municipality	South Africa
10669	95	31	96	1	Insert Box x in the text and provide information and effects of 100% electricity buses and taxis on GHG emission reduction in Shenzhen city with references.	Noted. Will check	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
47841	95	7			Suggest move mobility evidence base into transport section; suggest move food evidence to behaviour change section; suggest move buildings evidence to smart cities section.	Noted.	Martino Tran	University of British Columbia	Canada
33889	95				Table: what about widespread rooftop wind and solar power? This seems like the most obvious solution?	Noted. Will check	Debra Roberts	EThekwini Municipality	South Africa
10671	96	43	96	43	Replace "7%" to "7"	Text revised	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
28305	97	34	97	34	Some examples of cities experimenting with the circular economy, particularly through urban agriculture and green space management (Sardeshpande and Shackleton 2020), provide useful starting points for mainstreaming inter-sectoral linkages for climate change adaptation in urban areas.	Accepted. We would consider how to show examples	Mallika Sardeshpande	Rhodes University	South Africa
43075	97	35	97	40	It would be worth having a box (or one box for each sub-section) with detailed cases of transformation, preferably addressing a diversity of geographies.	Noted. We will complete these sections	Parth Bhatia	Centre for Policy Research, New Delhi	India
10673	97	35	97	41	Only titles were provided in the text at the moment. I would like to suggest the authors provide more explanation on this paragraph.	Noted. We will complete these sections	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
43137	97				In section 8.3.5.14. add the following paragraph (ref.: https://doi.org/10.3390/atmos11030236 .); "Climate change is the major global challenge that human face this century. As world population will reach about 70% living in cities by 2050, urbanization is one of the key issues that has to be considered extensively. The global rate of buildings energy consumption is 40-50% which contributes to 39% of global carbon emissions. From this standing point, it is not sufficient to only design buildings to accommodate, but there is a need to know how we design our cities' urban forms that generate our buildings of which, housing represent nearly 50% of the land use. In Egypt, buildings contribute to 67% of electricity consumption, 42% of energy consumption whereas housing that represents about 50% of the Egyptian built environment, contribute to 51.3% of electricity production, 19% of energy consumption and 9.7% of carbon emissions. In this concern, different urban pattern types perform thermally different. Hence, the future goal for restructuring, regenerating and new cities is to formulate a new climate based vision for residential developments as a city frontlines by the integration of urban, architecture and renewables dimensions based on the geometrically adjusted forms with GreeSect which can be parametrically optimized for similar climates countries. By this way, an international methodology for generating housing typologies can emerge but differentiated upon both the climate zone conditions as well as upon the different materials of each local site. This vision can be formulated in two parts to audit energy efficiency, thermal comfort and de-carbonization opportunities in both the existing housing stock as well as in a newly proposed typologies. In part 1, it is a crucial issue to transfer the novel technologies to help in filling the gap in measuring and quantifying the thermal performance of buildings based on airborne geomatics to measure surface temperatures. Drones can be fitted with high-definition and high-resolution cameras to achieve a real-time survey imagery of a site, in addition to 3D modeling of neighborhoods/districts through the LiDAR technology. Using such technology is a shift in the building retrofitting and auditing of existing urban forms. Drone Assisted Retrofitting (DAR) can be considered as part (1) towards a climate responsive and resilient housing. In part (2), and building on prior findings that identified the clustered/linear urban neighborhood form as an appropriate design archetype for medium class housing neighborhoods, a parametric optimization for such clustered form will take place to generate the most suitable geometry for each climatic zone towards a new ERA of housing typologies leading to a new generation of world wide climate responsive, adaptive and resilient cities. Through such two parts process, an adaptation co-benefits can be achieved: A- Extrapolation of how existing housing stock can be retrofitted to improve; 1. Human thermal comfort as a social sustainability (quality of life) indicator. 2. Energy efficiency as an economic sustainability indicator. 3. De-carbonization as an environmental sustainability indicator. B- Design optimization of future urban forms that generates housing typologies on a climate responsiveness basis, so that the previously mentioned sustainability measures (comfort, energy efficiency, and de-carbonization) can be achieved not only in the eight climatic zones of the Egyptian map, figure (1), but also can be replicated in other countries having the similar climate regions; i.e. an international climate responsive methodology for housing neighbourhoods design. This is hypothetically applicable through the same methods and methodology of DAR-ERA but surely having each site climate conditioned entered to the project start up as shown in the figure (2). Figure 1: climatic zones in Egypt, (HBRC 2008).	Thank you, references considered	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
47843	98	1	98	22	Suggest integrating section 8.3.5.15 into smart cities or emerging technologies section; or integrate all these sections into "emerging/dirupytive urban technology/solutions" section.	Thank you for this relevant paper	Martino Tran	University of British Columbia	Canada
12997	98	15	98	17	sentence "community to better understand the environmental impact of training ML models" does not seem right - consider revising. No environmental impact in training ML models.	Noted. To be discussed.	Mafalda Leite de Faria Coelho da Silva	International Energy Agency	France
33763	98	18	98	22	What were the findings of these investigations? What can policymakers learn from them? Are there any barriers to implementing the options in contexts?	Good point. This should be added.	Debra Roberts	EThekwini Municipality	South Africa
47777	98	22	98	22	Ichiba et al (2018) proposed a novel approach to define the appropriate range of scale (Ichiba, A. et al. (2018) 'Scale effect challenges in urban hydrology highlighted with a distributed hydrological model', Hydrology and Earth System Sciences. doi: 10.5194/hess-22-331-2018).	not sure if this is directly relevant to this topic.	Daniel Schertzer	Ecole des Ponts ParisTech,	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44257	98	38	98	39	It is recommended to cite the following paper: Giulia Melica, Paolo Bertoldi, Albana Kona, Andrea Iancu, Silvia Rivas, Paolo Zancanella, Multilevel governance of sustainable energy policies: The role of regions and provinces to support the participation of small local authorities in the Covenant of Mayors, Sustainable Cities and Society, Volume 39, 2018, Pages 729-739, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.01.013 . (http://www.sciencedirect.com/science/article/pii/S2210670717313471)	Taken in account; will likely include in section on multilevel governance structure and/or transnational networks. Table 8.9 includes examples of transnational networks. Multi-level governance and transnational networks are covered in detail in chapter 13. We'll add a cross reference to the relevant section	BERTOLDI PAOLO	European Commission	Italy
4999	98	24	109	17	Governance refers to rules, formal and informal, that	Partly taken into account. Sentence revised based on the comment and the glossary definition, and coordinating with Ch. 13 (Note: part 1/5 of comment)	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5017	98	24	109	17	govern human behavior and the means by which society determines and acts according to objectives and priorities. More precisely, governance is the articulation of	(See above: part 2/5 of comment)	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5019	98	24	109	17	those rules in legal and political frameworks, along with the necessary organizational agreements	(See above: part 3/5 of comment)	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5021	98	24	109	17	to perform them Governance encompasses the rules for decision making and those who participate	(See above: part 4/5 of comment)	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5023	98	24	109	17	in it, as well as the decisions themselves.	(See above: part 5/5 of comment)	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
31295	98	24	109	19	Section 8.4 could be further strengthened if it more explicitly addressed the urban politics of decarbonization. It implicitly acknowledges that urban mitigation strategies are political, for example when it identifies "political will" as a key conditionality for implementation (p. 9, l. 4; p. 102, l. 12), when it notes that city-level climate action often relies on intergovernmental transfers and is therefore shaped by local-state relations (p. 103, ll. 37-39), or when it observes that local policies can be upscaled only "[w]hen sufficient local autonomy is present" (p. 100, l. 6). However, by only implicitly addressing the politics of urban decarbonization, the section downplays important insights from a small but critical literature on the politics of urban decarbonization, which could help inform more effective public policy intervention to avoid carbon lock-in. Key contributions that could be included are Bulkeley (2011), Bulkeley and Betsill (2013), Castán Broto (2017), and Roberts et al. (2018). References Bulkeley, Harriet. 2011. "Cities and the Politics of Sustainability." In <i>The Oxford Handbook of Climate Change and Society</i> , edited by John S. Dryzek, Richard B. Norgaard, and David Schlosberg. Oxford: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195367867.013.0026 . Bulkeley, Harriet, and Michele M. Betsill. 2013. "Revisiting the Urban Politics of Climate Change." <i>Environmental Politics</i> 22 (1): 136–54. https://doi.org/10.1080/09644016.2013.755797 . Castán Broto, Vanesa. 2017. "Urban Governance and the Politics of Climate Change." <i>World Development</i> 93 (May): 1–15. https://doi.org/10.1016/j.worlddev.2016.12.031 . Roberts, Cameron, Frank W. Geels, Matthew Lockwood, Peter Newell, Hubert Schmitz, Bruno Turnheim, and Andy Jordan. 2018. "The Politics of Accelerating Low-Carbon Transitions: Towards a New Research Agenda." <i>Energy Research and Social Science</i> 44 (February): 304–11. https://doi.org/10.1016/j.erss.2018.06.001 .	Taken into account; some of these literature are already included, others will be incorporated where appropriate. The implicit meaning of the word 'politics' as one associated with controversy might make this phrasing less palatable to certain governments, however. Also: will delete the second sentence	Nicholas Goedeke	University of California, Berkeley	United States of America
31297	98	24	109	19	Section 8.4 could be further strengthened if it included lessons from the comparative political economy of public outlays. As Levy and Spiller (1994, 1996), Bergara, Henisz, and Spiller (1998), Witold Henisz (2002) and Dubash and Morgan (2012) amongst others, show, the distribution of public investment is highly political and shaped by political institutions. Public investment towards urban decarbonization is expected to follow this pattern as well, with important implications for how to complement mitigation and adaptation efforts with institutional reform. In fact, long-term institutional reform that enables public investment towards decarbonization might be more critical than immediate decarbonization, to nurture long-term institutional capacity to avoid carbon lock-in and accelerate urban energy transitions beyond quick wins. References Bergara, Mario E., Witold J. Henisz, and Pablo T. Spiller. 1998. "Political Institutions and Electric Utility Investment: A Cross-Nation Analysis." <i>California Management Review</i> 40 (2): 18–35. Dubash, Navroz K., and Bronwen Morgan. 2012. "Understanding the Rise of the Regulatory State of the South." <i>Regulation & Governance</i> 6 (3): 261–81. https://doi.org/10.1111/j.1748-5991.2012.01146.x . Henisz, Witold. 2002. "The Institutional Environment for Infrastructure Investment." <i>Industrial and Corporate Change</i> 11 (2): 355–89. Levy, Brian, and Pablo T. Spiller. 1994. "The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation." <i>Journal of Law, Economics, & Organization</i> 10 (2): 201–46. https://www.jstor.org/stable/764966 . ———. 1996. <i>Regulations, Institutions, and Commitment: Comparative Studies in Telecommunications</i> . New York: Cambridge University Press.	Partially accepted. This chapter considers literature post AR5- we may not add all the suggested references. However, the point raised will be considered here and in the section on financing.	Nicholas Goedeke	University of California, Berkeley	United States of America
33765	99	12	99	12	Figure 8.32 is rather linear and does not capture the complexity and multiplicity of actors involved in shaping climate policy and action right from the global to the local level. It might be useful to consider reflecting these complexities in the next iteration of the figure.	Partially accepted; unsure on how to balance incorporating the complexity and nuance of multilevel governance with creating a clear figure.; we could include another arrow or two Figure should be referred to explicitly in the text, however - and the text in the figure can better be related to the section text and visa-versa. Figure is revised.	Debra Roberts	EThekweni Municipality	South Africa

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44259	99	23	99	23	It is recommended to cite the following paper: Giulia Melica, Paolo Bertoldi, Albana Kona, Andrea Iancu, Silvia Rivas, Paolo Zancanella, Multilevel governance of sustainable energy policies: The role of regions and provinces to support the participation of small local authorities in the Covenant of Mayors, Sustainable Cities and Society, Volume 39, 2018, Pages 729-739, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.01.013 . (http://www.sciencedirect.com/science/article/pii/S2210670717313471)	Accepted; will likely include here or in discussion on transnational networks. This is also referred to in the section on multinational governance in Chapter 13.	BERTOLDI PAOLO	European Commission	Italy
45847	99	23	99	25	see Dekker 2018 Cities leading climate action for Dublin, specifically chapter 6, the plans were developed ahead of national guidance.	Will review source	Sabrina Dekker	Dublin City University	Ireland
5673	99	23	99	30	The following review article provides a comprehensive review and assessment of city climate plans in the U.S. It would therefore be a helpful reference for this passage on the policy action taking place in cities. Deetjen, T.A., Conger, J.P., Leibowicz, B.D., Webber, M.E., 2018. Review of climate action plans in 29 major U.S. cities: Comparing current policies to research recommendations. Sustainable Cities and Society 41, 711-727.	Will review source. Source is transport-focused so might be less relevant in this section.	Benjamin Leibowicz	The University of Texas at Austin	United States of America
40083	99	25	99	29	Revise "The capacity ... Roger et al 2017" as follows: "The capacity of subnational governments to autonomously pursue emissions reductions on their own depends on different political systems and other aspects of multilevel governance, such as innovation, legitimacy and institutional fit (Widerberg and Pattberg 2015; Valente de Macedo et al. 2016; Green 2017; Roger et al. 2017). Michaelowa and Michaelowa (2017) show that to date most subnational mitigation initiatives do not have features that would lead to effective mitigation." Reason: The quote of our paper in the current text is not consistent with its content.	Accepted	Axel Michaelowa	University of Zurich	Switzerland
34621	99	12			Figure Figure 8.32 should be place after title 8.4.1.1	Accepted	Ova Candra Dewi	Universitas Indonesia	Indonesia
47845	99	12			For Fig 8.32 please qualify if these 4 levels hold true for most nations/cities or particular to US. Or is this just one example of a multi-level governance approach?	Accepted; Figure 8.32 will be revised and needs to be better incorporated into the text, and needs to better reflect the text. In sum, this figure well represents the emerging consensus in the literature on urban environmental governance: that it is multi-level, transnational, and all levels can interact with each other and influence over each other depending on the context (which is not limited to a single national context).	Martino Tran	University of British Columbia	Canada
18489	100	22	28		There is also increasing recognition in climate literature of the long history of study of the role of urban movements encouraging local governments to take stronger action in this case mitigation action and such movements can provide leverage for local government to justify action see for example Katy Simon, Gradon Diprose & Amanda C. Thomas (2019) Community-led initiatives for climate adaptation and mitigation, Kōtuitui: New Zealand Journal of Social Sciences Online, DOI: 10.1080/1177083X.2019.1652659 ;or Local action that changes the world: Fresh perspectives on climate change mitigation and adaptation from Australia; Ireland and Clausen https://doi.org/10.1016/B978-0-12-814104-5.00027-2 while there are obvious limits the role of urban social movements over time in creating change is important	NOTE: regarding movements, need to discuss with HB and other LAs, CLAs on intersection of these movements and governance.	Bronwyn Hayward	University of Canterbury	New Zealand
33767	100	4	100	4	ESCo used only twice in this chapter. Please delete.	Accepted.	Debra Roberts	EThekwini Municipality	South Africa
33769	100	6	100	10	This kind of initiative is only possible when a higher level of government allows independence and innovation at the subnational level as in the case you have cited.	Partially accepted; in the paragraph's first and last two sentences, we qualify level of autonomy as the reviewer notes; we could express this more explicitly	Debra Roberts	EThekwini Municipality	South Africa
19555	100	8	100	9	"local" is duplicated.	Editorial, accepted	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
25133	100	9	100	9	Delete "local"	Editorial, accepted	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
44261	100	22	100	35	It is suggested to cite the following paper: Albana Kona, Paolo Bertoldi, Fabio Monforti-Ferrario, Silvia Rivas, Jean François Dallemand, Covenant of Mayors signatories leading the way towards 1.5 degree global warming pathway, Sustainable Cities and Society, Volume 41, 2018, Pages 568-575, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.05.017 . (http://www.sciencedirect.com/science/article/pii/S2210670717314762)	Will likely accept; need to fully review source.	BERTOLDI PAOLO	European Commission	Italy
44263	100	38	102	2	it is suggested you add the Climate Alliance (http://www.climatealliance.org/home.html) and for regions: Under 2 Coalition and the Region4 (https://www.regions4.org/).	Accepted (if table remains in text)	BERTOLDI PAOLO	European Commission	Italy
45849	101		101		It is worth noting that a significant portion of c40 cities have populations less than 3 million	Accepted (either in Table or text).	Sabrina Dekker	Dublin City University	Ireland
40085	102	7	102	10	Revise "Considered ... Roger et al 2017" as follows: "Considered as a variant of the "California effect," such networks provide a means of pushing, prodding, provoking, encouraging, enabling, or emboldening national governments to increase ambition (Widerberg and Pattberg 2015; Valente de Macedo et al. 2016; Green 2017; Roger et al. 2017). However, only few subnational mitigation initiatives have features like incentives for mitigation and MRV systems that would lead to effective mitigation (Michaelowa and Michaelowa 2017)." Reason: The quote of our paper in the current text is not consistent with its content.	Accepted	Axel Michaelowa	University of Zurich	Switzerland
1975	102	8	102	10	Suggest adding mention of other city or state entities globally that could be a part of the "effect" New York City and State actions in the mitigation space also have influence to national scale. Especially since NYC has its own Climate Panel	Partially accepted; we want to be careful not to be too centered on any particular region - but we could briefly mention of NYC's Climate Panel if there is room.	Ann Kosmal	U.S. General Services Administration	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44265	102	29	102	29	The following statement "Developing countries cities lack institutional, financial and technical capacities to enable local climate 29change action (high confidence) (Sharifi et al. 2017; Fuhr et al. 2018)." is also valid for smaller cities and communities in the Global North, for example in the EU CoM there are over 1000 small villages with less than 10000 inhabitant that are in this situation.	Accepted. Sentence is revised	BERTOLDI PAOLO	European Commission	Italy
18597	102	34	102	35	It is true that some countries have argued for a "development first" paradigm, but what are the implications or pros/cons? Some discussion might be useful.	Partially accepted. Chapter 13 discusses this in detail. We have included a cross reference to the relevant section	Kirti Joshi	Tribhuvan University	Nepal
33771	102	8			And what is the 'California effect'?	Accepted; we will define explicitly or delete	Debra Roberts	EThekwini Municipality	South Africa
33815	102	24			Not sure that "a similar summit" was held in Katowice. Need to check.	Accepted; will verify or delete.	Debra Roberts	EThekwini Municipality	South Africa
43135	103	12			Complete the figure name (see figure xx) !	Accepted. Figure number is added	Mohammad Fahmy Ramadan	Head of Civil & Architecture Branch, MTC, Cairo, Egypt	Egypt
34623	104	1	104	2	blank? - then erase	Accepted.	Ova Candra Dewi	Universitas Indonesia	Indonesia
45851	104	1	104	8	Is there scope to consider adaptive governance? For section 8.4.3 will there be consideration of how to overcome silos? i.e. collaborative process and consensus building in responding to climate change (Dekker 2018, work of Healy and Forester); Private sector might it be possible to consider the role of philanthropic donations beyond bloomberg to achieving climate action? i.e. home weatherisation programmes supported by Krezi in US cities	Taken into account	Sabrina Dekker	Dublin City University	Ireland
10675	104	1	104	9	8.4.2 Multi-dimensional decision-making may include 8.4.4 Private sector and 8.4.5 Civil society. I would like to suggest the authors consider re-organize the paragraph.	Taken into account	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
31363	104	3	106	33	Although the sections 8.4.4 and 8.4.6.1 have not been developed, they are both relevant to private sectors.	Taken into account	YUAN GAO	Zhengzhou University	China
25941	104	19	106	28	Data on urban finance could be quoted (see OECD, Subnational government spending).	Accepted	Edoardo Croci	Bocconi University	Italy
33773	104	19	106	33	Section 8.4.6 is largely silent on non-market instruments such as commitments by developed countries to fund adaptation and mitigation projects in developing countries. It will also be useful to consider linking this section of the chapter to chapter 15 and draw on their work on climate finance.	Taken into account	Debra Roberts	EThekwini Municipality	South Africa
33775	105	4	105	5	This is not true for many cities in the developing economies that have very limited revenue base and therefore rely largely on national government transfer for infrastructure projects. In this context, the extent to which such cities invest in low carbon infrastructure is largely influenced by the posture of the national government. In addition, priorities in such contexts might not necessarily be climate change mitigation but rather climate change adaptation projects that have more tangible immediate benefits and advance the political capital of elected officials.	Accepted. Will be revised	Debra Roberts	EThekwini Municipality	South Africa
18599	105	5	105	6	Replace "local municipality/municipalities" by "local government/governments" or simply "municipality/municipalities". All municipalities are local.	Accepted. Will use appropriate and consistent expressions	Kirti Joshi	Tribhuvan University	Nepal
1977	105	21	105	31	suggest adding additional references to support this argument.	Noted. Will be checked	Ann Kosmal	U.S. General Services Administration	United States of America
33777	106	1	106	1	ESG used only once in this chapter. Please delete	Accepted.	Debra Roberts	EThekwini Municipality	South Africa
1979	106	9	106	28	suggest including references to bond ratings either here or elsewhere i.e. Moodys example.	Accepted. Will try	Ann Kosmal	U.S. General Services Administration	United States of America
10677	106	30	106	33	Private sector engagement and financing would become more important under the new climate regime. I would like to suggest the authors provide the latest information rather than out of date values and additional information to underline their roles and impacts.	Accepted partially	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
25943	106	35	109	17	Some examples of urban PES (payment for ecosystem services) should be mentioned.	Noted. Uncertain if this is "urban" application	Edoardo Croci	Bocconi University	Italy
33779	106	6			Please explain what green bonds are and how they work.	Accepted. But very briefly or we use inventory together with Finance and Investment Chapter	Debra Roberts	EThekwini Municipality	South Africa
29303	106	30			I do not see any mention of community based finance and community savings groups; these are important means of service provision, particularly in informal settlements. See Feather, C. and Meme, C.K., 2019. Strengthening housing finance in emerging markets: the savings and credit cooperative organisation (SACCO) model in Kenya. Housing Studies, 34(9), pp.1485-1520; Shand, W. and Colenbrander, S., 2018. Financing the inclusive city: the catalytic role of community savings. Environment and Urbanization, 30(1), pp.175-190.--- I understand the relationship with mitigation may not be obvious, but these models of financing provide services, which are often low carbon and very efficient. Many projects I have visited had active programs to incorporate small renewables or other means to think about sustainable infrastructure. Their potential is internationally recognised, but there is a need to make this link.	Accepted partially. Finance and Investment Chapter covers some	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
29301	107	9			While it is true that land value capture has a lot of potential, it has also terrible impacts and may constitute a means for land grabbing; can this analysis be accompanied by a reflection of the 'how' of land value capture, and how further inequalities may be prevented?	Rejected. Bit off topic and depends on country	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
44267	108	32	108	41	Property taxation is discussed in details in Ch.9 Buildings. Beside tax incentives, tax disincentives can be applied to buildings with high CO3 emissions, this is also discussed in Paolo Bertoldi, Are current energy efficiency policies promoting a change in behaviour, conservation and sufficiency in line with the Paris Agreement? Review of existing policies and recommendations for new and effective policies, 2020 (forcoming in Energy Policy).	Noted. Will check how Chap 9 discusses property taxation and incentives.	BERTOLDI PAOLO	European Commission	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31299	109	20	109	26	<p>Section 8.5 could be strengthened if it defined low-carbon innovation. Chapter 8 appears to treat innovation mostly, if not necessarily exclusively, as technological. Innovation is framed in terms of renewables (e.g. p. 15, l. 21; p. 31, l. 39; p. 58, l. 16; p. 84, l. 25), electrification of transport (e.g. p. 15, l. 29; p. 39, l. 3; p. 51, l. 17; p. 94, l. 16), and smart cities (p. 86, l. 6 – p. 87, l. 5). However, in emerging contexts, where local institutional capacities to implement mitigation might be low, innovation will be both technological and institutional. In fact, in some cases in the Global South, innovations might be mostly institutional rather than technological. Section 8.5 could address some of these dimensions by looking at specific case studies, like Bus Rapid Transit (BRT) (Hidalgo and Graftieaux 2008; Mejía-Dugand et al. 2013; Bassett and Marpillero-Colomina 2013) or Solar Water Heating (SWH) (Urban, Geall, and Wang 2016; Huang et al. 2018). Both BRT and SWH systems appear to be low-tech high-impact innovations that are viable in emerging economies.</p> <p>References Bassett, Thomas E., and Andrea Marpillero-Colomina. 2013. "Sustaining Mobility: Bus Rapid Transit and the Role of Local Politics in Bogotá." <i>Latin American Perspectives</i> 40 (2): 135–45. https://doi.org/10.1177/0094582X12468867. Hidalgo, Dario, and Pierre Graftieaux. 2008. "Bus Rapid Transit Systems in Latin America and Asia." <i>Transportation Research Record: Journal of the Transportation Research Board</i> 2072 (1): 77–88. https://doi.org/10.3141/2072-09. Huang, Ping, Vanesa Castán Broto, Ying Liu, and Huizi Ma. 2018. "The Governance of Urban Energy Transitions: A Comparative Study of Solar Water Heating Systems in Two Chinese Cities." <i>Journal of Cleaner Production</i> 180 (April): 222–31. https://doi.org/10.1016/j.jclepro.2018.01.053. Mejía-Dugand, Santiago, Olof Hjelm, Leo Baas, and Ramiro Alberto Ríos. 2013. "Lessons from the Spread of Bus Rapid Transit in Latin America." <i>Journal of Cleaner Production</i> 50 (July): 82–90. https://doi.org/10.1016/j.jclepro.2012.11.028. Urban, Frauke, Sam Geall, and Yu Wang. 2016. "Solar PV and Solar Water Heaters in China: Different Pathways to Low Carbon Energy." <i>Renewable and Sustainable Energy Reviews</i> 64 (October): 531–42. https://doi.org/10.1016/j.rser.2016.06.023.</p>	Noted- will do.	Nicholas Goedekeing	University of California, Berkeley	United States of America
31365	109	20	109	27	The section 8.5 needs to be properly developed.	Noted- restructure/develop in relation to other relevant sections	YUAN GAO	Zhengzhou University	China
45853	109	22	109	22	Is this specific to the role of smart cities initiatives? Will there be an analysis of an initiative like waterfront Toronto?	Noted- restructure/develop in relation to other relevant sections	Sabrina Dekker	Dublin City University	Ireland
18601	109	36	109	36	Suggested reference for zoning/regulations: Kono & Joshi, 2019 (https://doi.org/10.1016/C2018-0-01304-3)	Suggests we add reference (Reviewer reference) Will check reference and see whether we can add.	Kirti Joshi	Tribhuvan University	Nepal
31301	109	28	112	2	<p>Section 8.6 could be further strengthened if it summarized the conditions under which local-state relations enable urban decarbonization. The chapter tends to frame local and state climate policies as substitutes, for instance when it explains that local governments have pledged more ambitious climate targets than their national counterparts (p. 99, ll. 1-2). However, a handful of works has begun to challenge this understanding. Hickmann (2017), for instance, finds strong complementarity and argues that city-level initiatives often actually rely on policies and program at higher levels of government to be effective. Similarly, Andonova, Hale, and Roger (2017) present evidence that participation of sub- and non-state actors in transnational climate initiatives complements rather than substitutes national climate policy, especially in economies that are relatively closed. This complementarity between city- and national-level decarbonization is expected to be even stronger in emerging economies, where local institutions often remain weak and urban decarbonization relies on significant intergovernmental transfers for financing.</p> <p>References Andonova, Liliana B., Thomas N. Hale, and Charles B. Roger. 2017. "National Policy and Transnational Governance of Climate Change: Substitutes or Complements?" <i>International Studies Quarterly</i> 61 (2): 253–68. https://doi.org/10.1093/isq/sqx014. Hickmann, Thomas. 2017. "The Reconfiguration of Authority in Global Climate Governance." <i>International Studies Review</i> 19 (3): 430–51. https://doi.org/10.1093/isr/vix037.</p>	Reviewer notes that we need to summarize conditions under which local-state relations enable urban decarbonization and provides some references. He's right, 8.6 is incomplete, only sections are on data availability and reliability.	Nicholas Goedekeing	University of California, Berkeley	United States of America
31303	109	28	112	2	<p>Section 8.6 could be strengthened if it addressed how policymakers can more effectively protect urban niche innovations and socio-technical experimentation. As the chapter highlights, cities, as sites of experimental governance, can play a special role in fostering niche innovations (p. 94, l. 25 – 96, l. 25). However, the section currently overlooks how powerful incumbents often try to stifle or slow down innovation that threatens their business model (Juma 2016). Studies of past energy transitions show that superior technology does not deploy itself, even though superior functionality certainly helps (Geels 2002; Geels et al. 2017; Pearson and Foxon 2012). In other words, fostering niche innovations alone will not be enough. These niches must be protected, so that they have a chance to culminate and eventually re-order socio-technical arrangements around cleaner energy systems.</p> <p>References Geels, Frank W. 2002. "Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study." <i>Research Policy</i> 31 (8–9): 1257–74. https://doi.org/10.1016/S0048-7333(02)00062-8. Geels, Frank W., Benjamin K. Sovacool, Tim Schwanen, and Steve Sorrell. 2017. "Sociotechnical Transitions for Deep Decarbonization." <i>Science</i> 357 (6357): 1242–44. https://doi.org/10.1126/science.aao3760. Juma, Calestous. 2016. <i>Innovation and Its Enemies: Why People Resist New Technologies</i>. Oxford: Oxford University Press. Pearson, Peter J.G., and Timothy J. Foxon. 2012. "A Low Carbon Industrial Revolution? Insights and Challenges from Past Technological and Economic Transformations." <i>Energy Policy</i> 50 (November): 117–27. https://doi.org/10.1016/j.enpol.2012.07.061.</p>	Similar point as above—here stresses the need to cover urban niche innovations. True, that section 8.6 is missing sections, and could use his comments and references to add on this topic. Accept if we keep and expand 8.6	Nicholas Goedekeing	University of California, Berkeley	United States of America
31305	109	28	112	2	<p>Section 8.6 could be strengthened if it outlined the political economic conditions that are expected to enable leapfrogging to avoid carbon lock-in. Unruh and Carrillo-Hermosilla (2006), for instance, argue that, first and foremost, leapfrogging will require significant diffusion of cleaner technology. Drawing on evidence from the telecommunications sector, they theorize that rapid diffusion requires modular technology, which can be installed quickly and expand with growing demand. Furthermore, leapfrogging needs an industrial leader, that has already developed and deployed the technology in question successfully, to ensure that the technology is reliable and cheap, and to limit uncertainties, risks and costs. A better understanding of the broader political economic and institutional conditions that are expected to enable leapfrogging might reveal critical policy windows for more effective interventions, and help prioritize allocation of scarce public resources towards decarbonization.</p> <p>Reference Unruh, Gregory C., and Javier Carrillo-Hermosilla. 2006. "Globalizing Carbon Lock-in." <i>Energy Policy</i> 34 (10): 1185–97. https://doi.org/10.1016/j.enpol.2004.10.013.</p>	Pointing out missing sections in 8.6, in this case indicates the need to include discussion of urban leapfrogging and provides reference.	Nicholas Goedekeing	University of California, Berkeley	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16311	109	20			In Section 8.5 Innovations and transitions for urban decarbonization, consider adding an in-depth treatment of education for sustainability both within traditional schools and as community-based organization. The field of sustainability education is nascent and including recent data and innovations will strengthen this section.	Reviewer recommends adding education for sustainability to section 8.5--innovations and transitions, which right now only has headings and a few subheadings. Good point, should accept.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
29305	109	20			Align this unwritten section with your section on behaviour change (and also Chapter 5 approach to broader social change)	Reviewer on unwritten 8.5, suggests we include behavior change here--aligning it with our section, 8.3.4.8, pp. 68-73, social innovation and behavior change. Also align with Chapt. 5. Accept.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
16313	109	28			In Section 8.6 Barriers and Opportunities, consider including data related to nature deficit disorder and how buy-in for urban transitions are hindered by the lack personal experience in natural settings.	Notes that 8.6--barriers--should include psychological factors, such as nature deficit disorder, and need for personal experience in the outdoors. Need to examine Chapt. 5, and literature on the topic,	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
45855	110	1	110	3	Repeats 8.5	Accepted	Sabrina Dekker	Dublin City University	Ireland
33781	110	5	110	24	The texts here is a duplication of what is on page 34. Please check and avoid duplication	Accepted	Debra Roberts	EThekwini Municipality	South Africa
20249	110		110		There is only one sub-section 8.6.1.1.Urban experimentation under Section 8.6.1. Should it be another sub-section under 8.6.1?	Accepted	Thi Lan Huong Huynh	Viet Nam Institute of Meteorology, Hydrology and Climate change	Vietnam
39541	110		111		Google Environmental Insights Explorer (EIE) may be referred as a data available (It may be referred in Chapter8)	Noted. Will discuss with authors	Shunsuke Kawagishi	Mitsubishi Research Institute	Japan
43077	112	4	112	4	The question of breaking carbon lock in is an important question, and is relevant for policymakers from developed as well as developing countries. I urge the chapter to include a detailed case study in this section if possible, with particular emphasis on overcoming political economy barriers.	Taken into account	Parth Bhatia	Centre for Policy Research, New Delhi	India
1485	112	5	112	5	"SD" should be "SDG"?	rejected as this is sustainable development, not necessarily goals.	JUNGUO LIU	Southern University of Science and Technology	China
45857	112	5	112	5	SD should be SDGs?	rejected as this is sustainable development, not necessarily goals.	Sabrina Dekker	Dublin City University	Ireland
27471	112	6	112	42	Well-implemented Zero Waste/Circular Economy strategies offer a host of co-benefits that may be even more attractive to cities than the mitigation benefits. These include reduced public expenditures on waste management; increased collection coverage; reduced flooding hazard; reduced air pollution; increased employment; integration of the informal sector; and improved aesthetics, which are particularly important in tourism zones. References: Condamine, P. (2019). The Story of Pontevedra (Case Studies No. 13). Zero Waste Europe; Dayrit, F. (2019). Picking up the Baton: Political Will Key to Zero Waste (Zero Waste Cities Asia). Global Alliance for Incinerator Alternatives; Ferran, R. (n.d.). The story of Sardinia. Retrieved March 7, 2020, from https://zerowastecities.eu/bestpractice/the-story-of-sardinia/; Rastei, E., & McQuibban, J. (2019). The Story of Salacea (CTangri, N., Gokaldas, V., Larracas, A., & Allen, C. (2012). On the Road to Zero Waste: Successes and Lessons from Around the World. Global Alliance for Incinerator Alternatives. Salazar, M. (2019). Route to Zero Waste: A Flood-Prone City Shows How It's Done (Zero Waste Cities Asia). Global Alliance for Incinerator Alternatives; ase Studies No. 12). Zero Waste Europe;	Noted. Zero waste should be better integrated.	Mariel Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)
19557	112	15	112	15	Where is Figure 8.42?	Accepted. Corrected in the revised draft	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
46735	112	15	112	15	Please add Mikael Karlsson, Eva Alfredsson & Nils Westling (2020) Climate policy co-benefits: a review, Climate Policy, DOI: 10.1080/14693062.2020.1724070. Please also see Fig. 1 in the referred review, as optional to include in chapter 8.7 (note also that the reference in the text to figure 8.42 is wrong).	The suggested reference is not directly related to cities.	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
31367	112	19	112	31	This paragraph has mentioned several nature based solutions but without specific data as robust evidence.	Partially accepted. Will add quantitative information in the revised version	YUAN GAO	Zhengzhou University	China
37763	112		113		Nature based solutions definition ? : "nature-based solutions aim to help societies address a variety of environmental, social and economic challenges in sustainable ways. They are actions inspired by, supported by or copied from nature; both using and enhancing existing solutions to challenges, as well as exploring more novel solutions" (European Commission, 2015).	The definition is now added to the glossary	Kouadio Sekedoua	Universit� Gustave Eiffel	France
31369	112	5	124	13	The structure of section 8.7 is not clear enough and has not covered all what has been mentioned by the section title.	Taken into account. Section has been revised to reflect the linkages better	YUAN GAO	Zhengzhou University	China
33783	112	36			Charcoal and biomass burning is very prevalent in African cities. SRCL reports on this.	Noted. African cities to be added.	Debra Roberts	EThekwini Municipality	South Africa
5675	113	2	113	4	The following reference uses a structural model to quantify the effect of anti-sprawl land-use regulations (designed to reduce GHG emissions) on raising home prices. It would therefore be a very relevant citation for this passage, which raises this exact concern. Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. Cities 70, 135-152.	Good suggestion. To be integrated.	Benjamin Leibowicz	The University of Texas at Austin	United States of America
46737	113	9	113	9	Please add Mikael Karlsson, Eva Alfredsson & Nils Westling (2020) Climate policy co-benefits: a review, Climate Policy, DOI: 10.1080/14693062.2020.1724070. Please also add thereafter, based on the same reference: "Moreover, improved processes, documentation requirements and criteria in decision-making are needed, in order to promote consideration of co-benefits in decision-making." MP: Partially accepted.	The suggested reference is not directly related to cities. To be discussed.	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
46919	113	9	113	9	Please insert the following sentence before "Developing a multi-dimensional...": "In order to highlight the various ways that synergies can occur, it has been suggested to label "climate policy co-benefits", i.e. mitigation benefits in addition to avoided climate change, as Type 1, and "climate co-benefits", i.e. climate mitigation resulting from a measure in another policy field, as Type 2, and benefit synergies of policies with multiple objectives as Type 3 (Mikael Karlsson, Eva Alfredsson & Nils Westling (2020) Climate policy co-benefits: a review, Climate Policy, DOI: 10.1080/14693062.2020.1724070).	The suggested reference is not directly related to cities. To be discussed.	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
33785	113	23	113	23	There are two shades of colours in figure 8.33 that have no accompanying explanation. Also, the row on renewable energy generation appears incomplete.	Accepted. The colours are explained in the legend and the blank spaces indicate no evidence. However, the figure is revised to include a detailed explanation	Debra Roberts	EThekwini Municipality	South Africa
19559	113	23	113	24	The figure number and title are missing. Where is this figure referred in the text?	It is in the following page.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10679	113		114		Provide information and explanation of Figure 8.33 in the text.	Noted. Will be added in the revised version	Youngsun Kim	Korea Institute of Civil Engineering and Building Technology (KICT)	Republic of Korea
45859	114	3	115	2	This is an important piece of the puzzle, urban planning emerged from public health. Can this be discussed earlier in the chapter? It is a narrative that people understand, the current COVID situation highlights that people understand health, and it can mobilise action. The impacts of climate change on health need to be given more prominence especially in the context of cities.	Accepted, section revised extensively	Sabrina Dekker	Dublin City University	Ireland
13425	114		115		Missing key reference on urban health and emissions in China; https://www.thelancet.com/action/showPdf?pii=S0140-6736(2818%2930486-0	Accepted, included	Gabriel Filippelli	Indiana University	United States of America
13427	114		115		Missing new paper on legacy and ongoing pollutants from emission sources and health links: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018GH000167	Thank you for the suggestion	Gabriel Filippelli	Indiana University	United States of America
33787	114	27		28	Please explain?	Accepted, text expanded to explain	Debra Roberts	EThekwini Municipality	South Africa
33789	114	32			It's worth citing literature on mental wellbeing from greening, search for biophilia.	Accepted, text expanded to explain	Debra Roberts	EThekwini Municipality	South Africa
33791	116				It is strange to see so much space dedicated to a single example from USA. There are many countries to choose examples from, and better examples when it comes to mitigation and vulnerable, poor populations.	Noted. To be addressed.	Debra Roberts	EThekwini Municipality	South Africa
19561	117	12	117	18	The geographical impact of climate change is much different from that of air pollution. The impact from air pollution appears rather near the pollution sources as indicated an example of California, however, the impact of climate change appears apart from the GHG sources and not so simple. Vulnerability of the settlements is more important.	Noted thank you	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
1487	117	1	118	25	The resolution of Fig. 8.34 and 8.35 is too low. The words are not clear in these figures.	Noted	JUNGUO LIU	Southern University of Science and Technology	China
2369	117		124		The interaction between land use planning and energy consumption in cities deserves more relevance in this chapter, see e.g. Le Néchet, F. (2012). Urban spatial structure, daily mobility and energy consumption: a study of 34 european cities. <i>Cybergeo: European Journal of Geography</i> ; Cremades, R., & Sommer, P. S. (2019). Computing climate-smart urban land use with the Integrated Urban Complexity model (IUCm 1.0). <i>Geoscientific Model Development</i> .	Noted, the first suggested ref is out of AR6 time frame, but will check the second ref.	Roger Cremades	GERICS	Germany
2371	117		124		The co-benefits with adaptation to climate change have been framed under "climate-smart urban land use" similarly as in "climate smart agriculture", and results show that adaptation is not a constrain to reduction of GHG emissions derived from urban land use planning (e.g. see section 3.3. last paragraph in Cremades, R., & Sommer, P. S. (2019). Computing climate-smart urban land use with the Integrated Urban Complexity model (IUCm 1.0). <i>Geoscientific Model Development</i> .)	Noted- will check.	Roger Cremades	GERICS	Germany
38043	118	7	118	8	I suggest to insert the following sentence: Co-benefits may also be identified in development of generalized residential building typology to promote planning and implementation for both mitigation and adaptation measures (Hrabovszky-Horváth et al, 2013) Reference: Hrabovszky-Horváth, S., Pálvölgyi, T., Csoknyai, T., and A. Talamon, 2013. Generalized residential building typology for urban climate change mitigation and adaptation strategies: The case of Hungary. <i>Energy and Buildings</i> , Volume 62, Pages 475–485	Reject- meaning unclear.	Tamás Pálvölgyi	Budapest University of Technology and Economics, Department of Environmental Economics	Hungary
19563	118	10	118	10	"when taking a mitigation measure deters implementing mitigation actions ..." --> when taking a mitigation measure deters implementing adaptation actions...?	Noted- will edit.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
19565	118	24	118	27	What is horizontal axis in the left-hand side of the figure? What is meant by the thickness of the lines and boxes?	Reject- this is a flow diagram, there is no horizontal axis.	Hiroaki Kondo	National Institute of Advanced Industrial Science	Japan
33793	118	26	118	26	Texts in figure 8.35 are quite blurred and difficult to read	Noted- will be updated.	Debra Roberts	EThekwini Municipality	South Africa
33795	119	1	119	1	Table 8.10 is interesting. It is recommended that the authors add another layer of analyses that assesses the literature. This will make the table more valuable in the context of an IPCC report.	Noted- will consider.	Debra Roberts	EThekwini Municipality	South Africa
33891	119				Table 8.10 is potentially very useful globally, so please consider in the light of avoided emissions for new developments particularly in developing countries. What options (especially leapfrogging) are there going forward, for growing and new cities in resource-poor situations? What are the many co-benefits especially for poor urban dwellers? What are the obstacles and requirements?	Noted- will consider.	Debra Roberts	EThekwini Municipality	South Africa
32499	123	1	123	5	Policies to improve efficiency of ACs and other cooling equipment can avoid significant emissions as demand for cooling grows. For instance, doubling the efficiency of new stationary air conditioners using best available technologies avoids 6 GtCO ₂ by 2030 and 29 GtCO ₂ by 2050. Up to 260 GtCO ₂ -e can be avoided with policies that encourage both maximum energy efficiency and use of low-GWP refrigerants. Shah, N., Wei, M., Letschert, V. and Phadke, A. (2019). Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment. U.S.A: Lawrence Berkeley National Laboratory ("For best-available-technology (or "maximum" efficiency), total savings to 2050 are 373.0 and 257.6 GtCO ₂ e for baseline (or static) electricity emission factors and decreasing emission factors, respectively (Fig. 1). Table S1 in the SI shows the GHG emissions for the reference case (no efficiency improvement and baseline HFC refrigerants) vs. the policy case of best-available technology (BAT) energy efficiency and low GWP refrigerants for 2030, 2040, and 2050 with static emission factors for both cases Reference case cumulative GHG emissions are 587.1 Gt CO ₂ e while the policy case is 214.1 Gt for an overall cumulative savings of 373.0 Gt CO ₂ e."); Dreyfus G., et al. (2020) ASSESSMENT OF CLIMATE AND DEVELOPMENT BENEFITS OF EFFICIENT AND CLIMATE-FRIENDLY COOLING.	Noted- but efficiency of appliance is beyond the city level mitigation measures.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32805	123	1	123	5	Policies to improve efficiency can lead to a large amount of avoided emissions as demand for cooling grows. For instance, doubling the efficiency of new stationary air conditioners avoids 6 GtCO ₂ by 2030 and 29 GtCO ₂ by 2050. Up to 260 GtCO ₂ -e can be avoided with policies that encourage both maximum energy efficiency and use of low-GWP refrigerants. Shah, N., Wei, M., Letschert, V. and Phadke, A. (2019). Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment. U.S.A: Lawrence Berkeley National Laboratory ("For best-available-technology (or "maximum" efficiency), total savings to 2050 are 373.0 and 257.6 GtCO ₂ e for baseline (or static) electricity emission factors and decreasing emission factors, respectively (Fig. 1). Table S1 in the SI shows the GHG emissions for the reference case (no efficiency improvement and baseline HFC refrigerants) vs. the policy case of best-available technology (BAT) energy efficiency and low GWP refrigerants for 2030, 2040, and 2050 with static emission factors for both cases Reference case cumulative GHG emissions are 587.1 Gt CO ₂ e while the policy case is 214.1 Gt for an overall cumulative savings of 373.0 Gt CO ₂ e."); Dreyfus G., et al. (2020) ASSESSMENT OF CLIMATE AND DEVELOPMENT BENEFITS OF EFFICIENT AND CLIMATE-FRIENDLY COOLING.	Noted- but efficiency of appliance is beyond the city level mitigation measures.	Kristin Campbell	Institute for Governance & Sustainable Development	United States of America
27473	123	7	123	22	This paragraph is incoherent. It starts talking about 'waste-to-energy' as a decentralised source of energy - which lacks empirical evidence, source and further specification of what technology that is. 'Waste-to-energy' could refer to incineration, which is highly centralised, and it could also mean small-scale biogas made of organic waste, which would be decentralised, for example. It needs complete restructuring, relevant content to the waste sector and sources.	Noted- will edit through.	Maríel Vilella Casaus	Zero Waste Europe	United Kingdom (of Great Britain and Northern Ireland)

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28307	123	40	123	40	Sardeshpande and Shackleton 2020	Rejected- impossible to assess the ref without full citation of it.	Mallika Sardeshpande	Rhodes University	South Africa
30635	123	41	123	43	There have been several other concerns raised about the effects of urban agriculture, including the fact that it may increase GHG emissions if plants are grown in energy- or resource-intensive locations; it may be less efficient in resource use and transport emissions than conventional agriculture; and if urban agriculture were to become ubiquitous in cities, it may reduce population density/increase urban sprawl and thereby increase driving/GHG emissions over the current system. See discussion in Santo et al. (2016) Vacant lots to vibrant plots. John Hopkins Center for a Livable Future. Baltimore, MD.	Noted- will add this aspect.	Raychel Santo	Johns Hopkins Center for a Livable Future, Bloomberg School of Public Health	United States of America
30637	123	41	123	43	There are many different forms of urban agriculture (ranging from outdoor gardens and farms with no climate-controlled conditions), to heated greenhouses, to rooftop and building-integrated facilities. The climate implications of urban agriculture will vary significantly based on what forms are being discussed. Chapter 12.4 covers some of these differences.	Noted- as above, a more nuanced description will be added.	Raychel Santo	Johns Hopkins Center for a Livable Future, Bloomberg School of Public Health	United States of America
25623	123	4			Not clear how appliances help lead to adaptation, no real mention of rebound effects?	Noted- will edit for clarity.	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
47771	124	13	124	13	Versini et al. (2016) argued on the urgent need of the development of operational simulation tools (Versini, P.-A. et al. (2016) 'Toward an operational tool to simulate green roof hydrological impact at the basin scale: A new version of the distributed rainfall-runoff model Multi-Hydro', Water Science and Technology, 74(8). doi: 10.2166/wst.2016.310).	Ref rejected- technical and beyond the scope of this section.	Daniel Schertzer	Ecole des Ponts ParisTech,	France
31307	124	15	124	33	Section 8.8 could be strengthened if it addressed major knowledge gaps on the urban politics of decarbonization and political economy of public outlays. For instance, the chapter notes that urban mitigation often evidences significant co-benefits (p. 112, l. 6 – 124, l. 13). However, the mechanisms by which cities realize these co-benefits, especially when GHG reductions are primarily viewed as a co-benefit, remain undertheorized. Do local policymakers mostly pursue no-regret climate policies, that is, policies that need to be enacted anyway? How and under what conditions, if at all, are environmental benefits, like GHG reductions and cleaner air, viewed and acted upon as more than just co-benefits? Relatedly, how and under what institutional conditions can key local decisionmakers mobilize and sustain environmental coalitions towards urban decarbonization? What role can mayors play? Which institutional arrangements enable mayors and environmental coalitions to implement sustained mitigation and adaptation? Highlighting questions like these would significantly help direct future social science research.	Noted. This is an incomplete section.	Nicholas Goedeking	University of California, Berkeley	United States of America
31371	124	15	124	33	The section 8.8 needs to be properly developed.	Noted. This is an incomplete section.	YUAN GAO	Zhengzhou University	China
6287	124	24	124	33	The following subsections need to have description, otherwise should be written in point form. 8.8.1 How to evaluate urban mitigation pledges? 25 8.8.2 Standardized, objective urban emissions data 26 8.8.3 Global South: How urbanization will unfold: Data needs, Policies, Informal Settlements 8.8.4 Long-term urbanization scenarios 8.8.5 Limits to urbanization	Noted. This is an incomplete section.	Brown Gwambene	Marian University College	United Republic of Tanzania
12521	124	25	124	25	Please, add in 8.8.2. "Currently, most of the climatic change models do not take into account the carbon dioxide uptake by mortars and concretes (Sanjuán et al 2020; Xi et al 2016). However, low carbon cements used low carbon concretes are able to uptake carbon dioxide and reduce its concentration in urban areas (CEMBUREAU 2020; Sanjuán et al 2019; Argiz et al 2014; Argiz et al 2017). Therefore, this emissions-uptake data should be considered in future models and statistics." Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Xi, F.; Davis, S.J.; Clais, P.; Crawford-Brown, D.; Guan, D.; Pade, C.; Shi, T.; Syddall, M.; Lv, J.; Ji, L.; et al. Substantial global carbon uptake by cement carbonation. Nat. Geosci. 2016, 9, 880–883. https://doi.org/10.1038/NGEO2840 CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346 Cristina Argiz; Miguel Ángel Sanjuán; Esperanza Menéndez. Coal Bottom Ash for Portland Cement Production. Advances in Materials Science and Engineering /Volume 2017 (2017), Article ID 6068286, 7 pages. https://doi.org/10.1155/2017/6068286 C. Argiz, E. Menéndez, A. Moragues, M. A. Sanjuán. "Recent advances in coal bottom ash use as a new common Portland cement constituent". SEI - STRUCTURAL ENGINEERING INTERNATIONAL, 2014. Vol 24 Nº 4, pp. 503-508. http://dx.doi.org/10.2749/101686613X13768348400518 .	I think the suggested references are not relevant.	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
2203	124	32	124	32	Please, add the following sentence after 8.8.4. "Low carbon cements may be selected to produce low carbon concretes. Cements with a high amount of pozzolanic materials are an effective way to reduce CO2 emissions (Sanjuán et al. 2016)". In addition, concretes may be designed to absorb a relative amount of carbon dioxide from the atmosphere (Wang 2019; Sanjuán et al. 2019)". M. A. Sanjuán; E. Menéndez; C. Argiz; A. Moragues. Coal bottom ash research program focused to evaluate a potential Portland cement constituent. II International Conference on Concrete Sustainability, ICCS16. Madrid, 13-15 June, 2016. CIMNE Ed. 532-543. ISBN: 978-84-945077-7-9 Wang, X.-Y. Impact of Climate Change on the Optimization of Mixture Design of Low-CO2 Concrete Containing Fly Ash and Slag. Sustainability 2019, 11, 3394. https://doi.org/10.3390/su11123394 Sanjuán, M.Á.; Estévez, E.; Argiz, C. Carbon Dioxide Absorption by Blast-Furnace Slag Mortars in Function of the Curing Intensity. Energies 2019, 12(12), 2346; https://doi.org/10.3390/en12122346	I think the suggested references are not relevant.	Miguel Angel Sanjuán	Technical University of Madrid	Spain
34625	124	15			sub chapter 8.8 seems to be far from finished	Noted. This is an incomplete section.	Ova Candra Dewi	Universitas Indonesia	Indonesia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2205	125	16	125	16	<p>Please, add a new FAQ: FAQ 8.5 How cement type selection influences the carbon dioxide mitigation? Portland cement is the mostly used cement to produce concrete. Hydrated cement in concrete and mortars naturally absorbs carbon dioxide during its lifetime, a physicochemical process known as carbonation, thus removing carbon from the atmosphere (CEMBUREAU 2020; Sanjuán et al 2020; Andrade and Sanjuán 2018). The cement type influences the carbon dioxide absorption. Therefore, low-carbon cements are recommended to mitigate climatic change via reduction of carbon dioxide production emissions, but also to enhance the concrete's carbon dioxide absorption. Table FAQ 8.5 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Please, add Table 2 from reference Sanjuán et al 2020</p> <p>CEMBUREAU 2020. https://lowcarboneyconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. Sustainability 2018;10:4806. https://doi.org/10.3390/su10124806</p>	Noted	Miguel Angel Sanjuán	Technical University of Madrid	Spain
12523	125	16	125	16	<p>Please, add a new FAQ: FAQ 8.7 How cement type selection influences the carbon dioxide mitigation? Portland cement is the mostly used cement to produce concrete. Hydrated cement in concrete and mortars naturally absorbs carbon dioxide during its lifetime, a physicochemical process known as carbonation, thus removing carbon from the atmosphere (CEMBUREAU 2020; Sanjuán et al 2020; Andrade and Sanjuán 2018). The cement type influences the carbon dioxide absorption. Therefore, low-carbon cements are recommended to mitigate climatic change via reduction of carbon dioxide production emissions, but also to enhance the concrete's carbon dioxide absorption. Table FAQ 8.5 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Please, add Table 2 from reference Sanjuán et al 2020</p> <p>CEMBUREAU 2020. https://lowcarboneyconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. Sustainability 2018;10:4806. https://doi.org/10.3390/su10124806</p>	Noted	MORA PERIS PEDRO	Profesor Titular de Universidad de la ETSI Minas y Energía de la Universidad Politécnica de Madrid	Spain
20743	125	16	125	16	<p>Please, add a new FAQ: FAQ 8.7 How cement type selection influences the carbon dioxide mitigation? Portland cement is the mostly used cement to produce concrete. Hydrated cement in concrete and mortars naturally absorbs carbon dioxide during its lifetime, a physicochemical process known as carbonation, thus removing carbon from the atmosphere (CEMBUREAU 2020; Sanjuán et al 2020; Andrade and Sanjuán 2018). The cement type influences the carbon dioxide absorption. Therefore, low-carbon cements are recommended to mitigate climatic change via reduction of carbon dioxide production emissions, but also to enhance the concrete's carbon dioxide absorption. Table FAQ 8.5 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Please, add Table 2 from reference Sanjuán et al 2020</p> <p>CEMBUREAU 2020. https://lowcarboneyconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/ Sanjuán, M.Á.; Andrade, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake by Cement-Based Materials: A Spanish Case Study. Appl. Sci. 2020, 10, 339. https://doi.org/10.3390/app10010339 Andrade C, Sanjuán MA. Updating Carbon Storage Capacity of Spanish Cements. Sustainability 2018;10:4806. https://doi.org/10.3390/su10124806</p>	Noted	Miguel Angel Sanjuán	Technical University of Madrid	Spain
33797	125				Another FAQ on How can growing cities in developing countries avoid carbon lock-in?	Noted	Debra Roberts	EThekwini Municipality	South Africa
9399					Nature-based solutions for urban mitigation of climate change offer a wide range of adaptation co-20 benefits (robust evidence, high agreement). These include, but are not limited to, flood mitigation, reduced 21 pressure on urban sewer system, urban heat island mitigation, and public health co-benefits.	Agreed.	ANNA LAURA PISELLO	DEPARTMENT OF ENGINEERING - UNIVERSITY OF PERUGIA, ITALY	Italy
9401					Nature based solutions do not actually include urban heat island mitigation solutions. Maybe it is the contrary, since some UHI mitigation may be done with NBS but others are not nature-based at all (cool pavements and roofs, etc.)	Agreed.	ANNA LAURA PISELLO	DEPARTMENT OF ENGINEERING - UNIVERSITY OF PERUGIA, ITALY	Italy
25527					Please take care not to use value-judgement terms such as 'important', 'significant' and also prescriptive terms such as 'need' and 'must'. Some readers will interpret these statements as policy prescriptive.	Accepted for the whole text.	Sarah Connors	IPCC WGI TSU	France
25561					As a reader who isnt familiar with all the topics being discussed in your chapter, it might help many Executives Summaries to include subheadings to cluster the statements by topic or overarching chapter themes.	Accepted	Sarah Connors	IPCC WGI TSU	France
25625					Thank you for your tremendous work!!	Noted	Jacob Stuart Halcomb	Consultant to Cities and Adaptation Units of the UN Environment Programme	France
29057					Examples in several sections focus on a single region. Please keep balance into consideration for SOD	Accepted	Priyadarshi Shukla	Ahmedabad University	India
29059					Several instances of repetitions of 'lock-ins', 'co-benefits of urban actions' and 'opportunities'.	Noted	Priyadarshi Shukla	Ahmedabad University	India
29283					The title is about urban systems, but the executive summary talks about 'cities.' There are a few challenges with this. First, the term 'cities' may not capture the varieties of urbanisation processes that are accompanying the urban transformation. Second, the idea of 'cities' relates to a form of governance that may exclude important styles of urban settlements, for example 'cities' have traditionally been inadequate to govern peri urban development. Third, the question is also whether the mandate of looking at 'urban systems' means looking at cities only, or there is a variety of human settlements that needs to be consider. It is only a question of clarifying terminology, but it is nevertheless contrasting to see the title and the messages together using different terminology, regardless of what you think of the above critiques.	Accepted	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
29289					Lovely to have such a positive view of urban areas, but there is a need to explain as well the complexities involved in mitigating climate change at that level	Agreed. A more nuanced sentence will be added on the challenged, in particular in governance section and in relation to scales- spatial, temporal and institutional.	Vanesa Castan Broto	University of Sheffield	United Kingdom (of Great Britain and Northern Ireland)
31373					The chapter has exceeded the page limit although several sections have not properly developed yet. It is better to simplify, integrate or summarize some sections.	Noted	YUAN GAO	Zhengzhou University	China
31375					The allocation of each section needs to be more balanced. For example, there are 51 pages from page 48-99 only for section 8.3, 40% of the whole main body.	Taken into account to ensure a balanced assessment, thank you	YUAN GAO	Zhengzhou University	China
33105					I would suggest to include legislative direction from government level to develop climate smart residential, commercial, industrial and other urban infrastructure in city areas and other settlements	Noted thank you. This is covered	Edris Alam	Rabdan Acadmey	United Arab Emirates
33799					It seems that the number one priority in cities is rapid transition to renewable energy, which in cities the most obvious one is rooftop solar, at every level: private homes, shops and industry. Massmart in South Africa, https://www.bizcommunity.com/Article/196/457/181886.html - no an academic report unfortunately, but a nice example.	Accepted. The integration of renewable energy in cities in support of a rapid transition will be emphasized in the SOD.	Debra Roberts	EThekweni Municipality	South Africa
33801					In the ZOD mention was made of something like 'dreaming of a good future' as a means of visualizing and working towards something that could work in terms of mitigation, adaptation and development. This is a very helpful approach, especially if it could be linked to current status. i.e. if you start off with a new urban African area with high urbanization, which way should you go to get to a sustainable and liveable future by the shortest route? The answer for another type of city, say in America, would be very different. Can this chapter provide various 'road maps' based on where you start from? Countries need easy access to information they can use as everyone aims to deal with the problem in whatever way is appropriate locally.	Noted	Debra Roberts	EThekweni Municipality	South Africa
34627					overall this chapter is great with its holistic approach. Some comments in the sub chapters were very detail while in some other were too less, some data in each will increase understanding of the reader, even if they are (actually) not interested.	Noted. Thank you	Ova Candra Dewi	Universitas Indonesia	Indonesia
34629					some data/case studies are too focused on the country/origin of the authors.infact, in Indonesia, where the open dumping practices are still around didn't reveal. It only came out regarding the transportation (well that is too).	Accepted. The regional representation of urban relevant literature will be improved throughout the chapter.	Ova Candra Dewi	Universitas Indonesia	Indonesia
34631					Data availability is always a challenge	Taken into account. We will strive to improve.	Ova Candra Dewi	Universitas Indonesia	Indonesia
47107					Efficiency, consistency and sufficiency are the three complementing approaches when discussing energy consumptions and sustainable development. Yet the latter one is usually neglected because of its complexity, which is also the case in this chapter. Although sufficiency has been addressed in the "Building" chapter, it has not been considered in other sectors, especially urban systems that is closely related to buildings. When designing new settlements, as well as expanding the existing ones, sufficiency measures can be important at the urban scale as well as at the building scale. It is only through a holistic approach that the highest level of energy savings could be achieved with low or no costs. Therefore, we cannot believe in the importance of sufficiency measures as an essential driver in achieving energy savings in buildings and not consider them in other sectors, like Transport and Industry. The topic of sufficiency is a complex one and not easy to define and not much studied in the literature. Although it is addressed by some scholars. Thaler and Kellenberger (2017) focus on the occupancy rate as an indicator for sufficiency in sustainable neighborhood. Gungör and Polat (2017) study the sufficiency of the urban parks. Including sufficiency in energy discussions and in different sectors can help to reach a higher level of energy savings. See: https://www.sciencedirect.com/science/article/pii/S1876610217333957 https://link.springer.com/article/10.1007/s10661-017-5875-9	Taken into account. Aspects of efficiency, consistency and sufficiency in the urban context will be considered.	Mahsa Bagheri	Fraunhofer Institute for Systems and Innovation Research ISI	Germany
48047					Comment on the chapter outline : where are gender aspects addressed (within equity)? Where are mitigation co-benefits for public health (eg air quality, active mobility) explored? Overall, the outline has more subsections than other chapters (consider harmonization of styles of outlines).	Thank you for the suggestion, this is considered	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France
48049					Comment on the ES : WGI provides a few aspects related to cities (air quality; urban heat island effect in a warming world; sea level rise and extreme events) which could be relevant for cross WG coordination (check eg. WGI ch 6, 10, 11, 12).	Agreed. We will generate more cross-linking in the next draft of the chapter.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France