Corresponding Excel files have been provided for reference if any field is unreadable in PDF

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4749	0	0	0	0	In case of use, my colleagues and I had worked on estimating the costs of urban service provisioning where the coping mechanisms do not include renewable energy options. We found that once we start taking into account the climate costs to health, the price for basic urban services increases significantly. There is a delicate balance between public services such as electricity, water and transport and residents finding their own coping alternatives where options are limited. The paper can be found at this link - https://icrier.org/pdf/SCA-of-urban-services_Feb%202018_report.pdf	Rejected. Self citation	Sagar Sagar	GGGI	Canada
46039	0	0	0	0	For the abbreviation of the term nature-based solutions, it is recommendable to consistently use the acronym NbS instead of NBS, as NBS is the acronym for National Biodiversity Strategies.	The term urban NBS reflects the literature and the author team was in concensus to continue to use the term.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
49587	0	0	0	0	Manipal School of Architecture and Planning-MAHE-Manipal-India. Faculties- Dr.(Prof.) Deepika Shetty; Prof. Sonali Walimbe; Mr.Shanta Pragyan Dash; Ms. Komal Jaiswal; Ms. Rituka Kapur; Mr. Satyaprakash Das; Ms. Jambavati Gouda; Mr. Anoop Kumar Shukla; Ms. Sahana Ganesh. Students- Ms. Sowbarnika.V; Ms.Hemamalini S; Ms. Induja P Menon; Ms.Srushti Bandivadekar .	Rejected. Comment brings no message	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65063	0	0	0	0	The members participating in YOUNGO Cities WG review are: Karishma Asarpota, Kervelle Baird, Euan Crispin, Patrizia Gragnani, Michelle D Hernandez, Manav Khanna, John Leo Algo, Prakhar Mehta, and Siddharth Srivastava.	Rejected. Comment brings no message	Karishma Asarpota	ICLEI World Secretariat	Germany
8989	0				The words “slums” and “homeless” never appear in the 137 pages of text, nor do the words “children”, “welfare”, “well-being”, “democracy” and -astonishing- “migration/migrants”, while the word “education” appears just 3 times. On the other hand, the words “economy/ies, economic and business/es” score 166 appearances, excluding those in the document references. This is jarring, after the entire IPCC report advocates the (systemic) need to consider how sustainability discourses must match social justice and inequality problems at any level. For example (see Gonella F., 2019: The Smart Narrative of a Smart City. Front. Sustain. Cities 1:9. doi: 10.3389/frsc.2019.00009), 37 percent (around 700,000) of Londoners children live in poverty (https://data.london.gov.uk), and according to the CHAIN multi agency database (https://www.mungos.org/combined-homelessness-and-information-network/), commissioned and funded by the Mayor of London, the city presents an astonishing homeless growth rate of 15 new ones per day. Given the non negligible probability of serious political instability in urban areas following local or global collapses in the agriculture prodution, in turn followed by unprecedentent forced migrations, any mitigation and/or adaptation policy at the urban level should consider ab initio, as a critical issue, the capability of the city systems to accommodate, feed, and integrate in its societal metabolism even larger numbers of dwellers. Albeit extremely difficult to draw effective and realistic scenarios for this, I suggest to include in this Chapter a dedicated paragraph to warn about these social aspects.	Rejected. This chapter is focused on mitigation options from urban systems and other settlements. Its primary purpose is to assess how urban systems contribute to GHG emissions and the key mitigation strategies to reduce urban GHG emissions. Slums and other infomal settlements do not constitute a large share of urban GHG emissions. That said, we have added text about the potential of harnessing the informal sector and informal practices. Other issues raised by the reviewer are outside the scope of this chapter.	Francesco Gonella	Ca' Foscari University of Venice, Italy	Italy
21957	0				There seems to be a couple inconsistencies with chapter 5: first, there is an ambiguity in chapter 8 between urban density and urban compactness. Indeed, the notion of density can refer to several meanings (density is the ratio between a quantifiable element - inhabitant, employment, square metre of floor space, for example - and the surface area). Second, greening of the city is presented as relative, whereas it is presented very positively in Chapter 5 or the summary for decision-makers.	Noted. Urban density is a two-dimensional concept, typically residents over a surface area. Urban form is the 3-dimensional projection of urban density that takes into account the 3-dimensional form of buildings and open spaces in an area.	Government of France	Ministère de la Transition écologique et solidaire	France
21959	0				The smart grid is defined solely as an electrical network. However, there are many projects that exist for smart heating, gas and multi-energy networks. The reference to electricity should probably be removed to indicate that the smart grid concerns electricity, but also gas, heat and cold, and multi-energy.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
21961	0				It might be important to specify how the various parameters of spatial organisation will affect greenhouse gas emissions: accessibility versus proximity.	Accept. Have added a section on Accessibility and the 15/20 minute City Movement	Government of France	Ministère de la Transition écologique et solidaire	France
21963	0				Please consider mentioning the use of new construction materials, social and functional mix to avoid transport for local activities, citizen movements for urban agriculture or re-vegetation of cities, short circuits, etc. Indeed, these are methods now integrated in the town plans of many cities.	Reject. Noted. Circular economy, lifecycle. Topics already included in the systemic approach	Government of France	Ministère de la Transition écologique et solidaire	France
66921	0				The entire chapter speaks about "cities" - but who are you referring to? The city government as the actor? Or all actor active in the urban environment, including city governments, businesses, individuals, etc? Suggest to be clear when you are referring to a specific actor	Partially Accepted. Most sectionsof the chapter discuss cities as systems of interacting elements and the section on governance touches on cities as spaces within which agents/actors deliver governance decisions for mitigation.	Lea Ranalder	REN21	France
71911	0				The resolution of all tables is very low, difficult to read	Accepted. We had issues aquiring high-resolution versions of some figures ahead SOD submission, and will be working with graphic designers to reproduce many of these FGD.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71913	0				The name of all tables and pictures is too long. There is enough to keep first sentence or 1-2 lines and all other descriptional text can be put in document text.	Accepted. We have edited the figure and table titles.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71915	0				The chapter could also cover settlements by the sea/coastal areas in a distinctive manner.	Reject. Chapter is focused on mitigation.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
16429	1	1	1	1	Regarding the title of Chapter 8, the chapter does not discuss on "other" settlements other than a full range of urban settlements. It would be better to change the title to "Urban Systems and Settlements" if it doesn't specifically address other types of settlements. Sub-chapter 8.1.3 states its focus on urban settlements, thus instead of having "other settlements" in the title, "urban systems and settlements" seems to be more appropriate. (Though there are brief sections in the report on informal settlements(8.3.1.1) and urban-rural linakge (8.4.5), they are still treated in the urban context.)	Rejected; this is the IPCC approved title and we address other settlements in the typology that includes small medium cities. Section 8.1.3 defines 'urban systems' to include small and medium sized cities as well as other settleents between cities and their hinterlands.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
52287	1	1	1	1	The chapter is overreferenced in some occasions. For example, page 59 line 32-39, 19 references are used to support one statement.	Taken into account. Certain statements are split into multiple statements when appropriate to avoid an overload of references as relevant lines of sight.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52289	1	1	1	1	The writing should be made more concise to sharpen the key take away messages from the chapter	Noted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52323	1	1	1	1	The chapter would be improved if structured differently. Instead of starting to lingering over policies that create co-benefits (sustainable development, economic development, competitiveness, and equity, and coupling mitigation and adaption, it could be framed as (1) direct strategies and policies over urbanization and other settlements in one section, (2) positioning the limits and extends of co-benefits created in strategies or policies aimed at a different purpose in a sub-section, (3) exploring the existing approaches and experiences of synergies distinguishing what are the synergies created for urbanism and other settlements by considering strategies or policies for both urbanism and another purpose simultaneously (e.g. transport) in other sub-section, and (4) differentiate between direct strategies or policies for urbanization and other settlements, co-benefits, and synergies so that readers can easily understand the key message.	Rejected: the structure is aligned to the multi-sectoral integrated mitigation responses over sector-based responses for synergies, co-benefits and minimization of tradeoffs. This strutcure also alogns with synergeis between mitigation and adaptation in city systems	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
84199	1	1	191	39	I beleave it would be very important to include a chapter on water, its availability, treatment and distribution conditions, for urban and inland populations. The availability of adequate water for treatment and consumption is strongly affected by the events resulting from climate change. There are several regions that suffer from problems related to the availability of good quality water, either due to its inadequate use (in agricultural productio industrial production for example), or because of the pollution of existing reservoirs (rivers, lakes, dams and groundwater). It is important to consider that there are regions that end up with chronic droughts and the number of regions subject to this situation has been increasing. This whole scenario has only been aggravated by climate change, which would justify the elaboration of an independent chapter.	We did have a section on water in a previous draft, could take a look and see whether we can use. Water supply and treatment do use electricity, and as the temperature increases, water treatment through recycling, desalination will require even more electricity. Also included in WGII Chapter 6.	PEDRO CORTES	University of Sao Paulo - USP	Brazil
46949	1		1		the executive summary does not fully reflect the contents of the chapter, i.e. with regards to the interlinks among sectors that occurs in cities.	Accepted with thanks.	Valentina Palermo	JRC	Italy
3995	1		191		The text is very clear, complete and objective. It brings, in my understanding, fundamentally all the information pertinent to the treated subject. The section is very well written and the authors were very responsible and assertive in dealing with the subject in question. For these reasons I have nothing significant to add as I understand that the topic is being treated very clearly and completely. The authors are to be congratulated for the excellent work.	Accepted with thanks.	FABIO RUBENS SOARES	USP - Universidade de São Paulo	Brazil
4465	2	14	2	14	Add 'compounding effects'	Accepted.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India

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4467	2	17	2	17	After line 17 Add Urban Sprawl	Reject. Urban sprawl is normative.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4469	2	31	2	31	Handling compounding dynamic Urbanisation effect due to dynamism in Demmography, Science and Technology	Noted	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4471	2	37	2	37	Head 8.7.1 Replace 'COVID-19' by 'Zonotic diseases and other Pandamics'	Rejected; this will open up a whole discussion about diseases	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4473	2	37	2	37	After line 37 Add sub head 8.7.1.1 …. COVID-19	Reject. No need to add an additional sub-header on COVID under the COVID subsection/subheading.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4475	2	37	2	37	After sub-head 8.7.1.1 …. Add sub head 8.7.1.2 …. Bio-terrorism	Rejected. This is outside the scope of the chapter, which focuses on how urban systems and other settlements contribute to GHG emissions and climate change.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4477	2	37	2	37	check for the possibility of adding sub-head ….'Disasters'	Noted	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
6947	4	1	4	1	An important message worth highlighting is the needed finance for transforming urban centres and achieving net-zero.	Accepted with thanks.	Debra Roberts	EThekwini Municipality	South Africa
84465	4	1	5	44	Co-benefits should be strengthened in the executive summary as it is one sub-chapter (8.2.) and it offers many windows of opportunities in urban areas.	Accepted. Co-benefits now appear twice in the ES.	Jose Antonio Puppim de Oliveira	FGV	Brazil
6949	4	1	86	12	Overall, the quality of pictures in this draft is poor. The text is nearly impossible to read. Authors should consider recreating the figures. It is worrying that several tables and figures in the Chapter either have pending permission or are from papers under review. What happens if permission is not granted or the papers are not accepted for publication?	Accepted. We had issues aquiring high-resolutions versions of some figures ahead SOD submission, and will be working with graphic designers to reproduce many of these FGD. Regarding permission, permission will either be aquired by FGD submission - or figures will be replaced.	Debra Roberts	EThekwini Municipality	South Africa
6951	4	1	86	12	Besides the executive summary, the standard IPCC confidence statements are not used in the chapter. This makes the chapter come across as a high level literature review not the kind of rigorous assessment that one would expect of an IPCC report. It is important that the authors carefully address this in preparing the final government distribution.	Noted. TSU suggests using confidence language in the chapter text at our discretion; will review and consider incorporating where appropriate.	Debra Roberts	EThekwini Municipality	South Africa
6953	4	1	86	12	The chapter should consider assessing the concept of smart cities in the context of climate change mitigation.	Noted	Debra Roberts	EThekwini Municipality	South Africa
6955	4	2	4	10	Please add the line of sight to the underlying section of the Chapter that support the information in this executive summary point.	Accepted	Debra Roberts	EThekwini Municipality	South Africa
79263	4	2	4	10	The paragraph starting, "Urbanisation is a major trend…" implies that, by increasing incomes and consumption, urbanization increases GHG emissions. However, at moderate to high incomes, urbanization tends to reduce per capita (particularly transport) emissions and land consumption compared with suburban and rural development. I suggest rewording to recognize the economic, social and environmental benefits of urbanization. See: Global Commission on Environment and Economy (2014), Better Growth, Better Climate: The New Climate Economy Report, Global Commission on the Economy and Climate (www.newclimateeconomy.net); at www.newclimateeconomy.report.	Noted. We agree that, in certain contexts, urbanization does not necessarily lead to an increase in emissions. We will clarify that, in general, the movement to cities and towns and the industrialization of economies are global trends, and how it manifests in terms of emissions varies.	TODD LITMAN	Victoria Transport Policy Institute	Canada
4935	4	2	4	3	With pandemic and after pandemic such a trend might significantly change as we are already assisting to people move from cities to more peripheric areas	Rejected. Not clear what the trend will be post-COVID, and the trend will likely be to suburbs, which will occupy more land.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
21625	4	2	4	3	About "Urbanisation is a major trend that will continue through the 21st century" Nuance with a modal? There is nothing for certain that this will be true for the whole century (particularly because of climate change impacts) and there could be very strong variations between different regions of the world.	Reject. Confidence interval included.	Government of France	Ministère de la Transition écologique et solidaire	France
6957	4	3	4	3	With robust evidence and high agreement, could you consider assessing the confidence level?	Accepted.	Debra Roberts	EThekwini Municipality	South Africa
21627	4	3	4	4	to mention here the state of the policies to control the demographic explosion and its contrasting results according to the countries as well as the effects induced on immigration and the great transhumance seems unavoidable.	Reject. Not as appropriate for WGIII Ch8, but perhaps Equity, SD WGIII chapters - and for WGII Ch6.	Government of France	Ministère de la Transition écologique et solidaire	France
10693	4	3	4	5	Of course mentioning the increase per year and on the next line the increase per week is not forbidden; still one does not expect a summary to be that chatty!	Accepted. Changes made.	Philippe Waldteufel	CNRS	France
10695	4	3	4	5	this comment is deleted	Noted. No follow-up needed to deleted comment.	Philippe Waldteufel	CNRS	France
18371	4	4	4	6	Consider addition of point relating to the uneven geographical distribution of this growth - central and problematic point so perhaps introduce at early stage	Accepted. Changes made.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21629	4	5	4	6	About "Every week the urban population increases by about 1.3 million" This data has a strong impact in terms of communication, but it should be nuanced for at least two reasons: 1. what is included in the urban population when the definition of the city varies considerably depending on the country and the statistics raise serious problems, especially regarding infomel and/or illegal housing? 2. the trend is very different from one region to another, the scale should at least be specified. Shrinking cities also exist...	Accepted. Changes made.	Government of France	Ministère de la Transition écologique et solidaire	France
71917	4	7	4	9	Yes, growing urban population will also means more consumption associated with urban lifestyles, but this statement is at the beginning of the Chapter 8, describing why we put special focus on Urban areas in this report, therefore for the reader can not be clear what is the main overall problem: 1) people moving to cities and if energy consumption per capita is higher in Urba areas, so the overall energy consumption on Earth increases, or 2) maybe the problem is because people are moving to Urban areas and even if energy consumption per capita is smaller in Urban areas due to economy of scale (district heating, multiflat buildings, etc.), we focus on Urban areas as they are "Low Hanging Fruits" where our action can lead to highest climate impact (page 4, lines 11-13 about majority of carbon consumption in urban areas).	Noted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21631	4	8	4	9	About "a growing urban population will also mean more consumption associated with urban lifestyles." This statement does not consider the very strong social and economic inequalities within the cities. Conversely, it does not take into account the fact that in industrialized countries, urban lifestyles have spread to rural areas as well and that suburbanization leads to lifestyles that are highly emitting GHGs. This is in contradiction with the assertions that emissions are closely related to social and economic inequalities, at the individual level.	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
16443	4	11	4	11	Using the full name of AR5 can help readability of the executive summary.	Accepted.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
4479	4	11	4	16	Differentiate between Sprawling and Compact city systems	Reject: This distinction is addressed in many sections of the chapter, but the attribution of carbon emissions in general to urban areas is well documented and warrented in summary.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4481	4	11	4	16	Add reference: Bharat, A (2017), Is an unbuilt area of land available for development,https://www.acccrn.net/sites/default/files/publication/attach/is_an_unbuilt_area_of_land_available_for_development.pdf	Reject: Publication not in a peer-reviewed journal.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India

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79265	4	11	4	16	As above, although it may be true that "urban areas contribute to the majority of the global carbon footprint" this is because the majority of affluent residents and the majority of industrial activites, occur in cities. Don't imply that urbanization increses emissions. To illustrate this, see the Cool Climate Network (https://coolclimate.berkeley.edu) maps which show average per capita cabon footprint (transportation, housing, food, goods and services) by U.S. geographic area. It generally shows lower rates in central city neighborhoods than in outer suburbs and rural areas.	Noted.	TODD LITMAN	Victoria Transport Policy Institute	Canada
21633	4	12	4	12	About "(medium evidence": All the AR6 report suggests that evidence is robust	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
21637	4	13	4	13	About "45-87%": These numbers should be presented together with the percentage of urban population worldwide	Reject. Only if info comes from the same source	Government of France	Ministère de la Transition écologique et solidaire	France
82551	4	15	20	4	If possible, suggest providing a more recent assessment pre-2020 of the urban contribution to GHG emissions. The 2015 estimate seems quite out of date and new baseline well in advance of the AR7 special report would enable more robust and relevant urban climate literature and policies to develop between AR6 and AR7.	Interim response contribution: Published scientific literature is based on 2015 values as the reference year. Values will be updated with new published literature as available.	Constabile Kerry	Oxford University School of Geography	United States of America
6959	4	15	4	21	What qualifies as a 'significant change'? It might be useful to rather present the % change and let the reader decide if this is significant or not.	Accepted. Significant change is no longer used. The percentage change is now provided.	Debra Roberts	EThekwini Municipality	South Africa
10697	4	17	4	17	The 1rst question which comes to mind is whether the urban population is the main driver of urban emissions (alternatively: whether the urban share of population is the main driver of the urban share of emissions). Unfortunately the answer does not seem to be present in the SOD. Unless I am mistaken, not a single figure in this chapter features times series. Does that mean they carry neither information nor explanatory properties?	Noted. The chapter has new figures with time series information. We have added a box on drivers of urban GHG emissions.	Philippe Waldteufel	CNRS	France
6961	4	17	4	22	Please consider presenting the % change for developing countries before reporting on the region with the most % increase.	Accepted. The presentation of information is updated.	Debra Roberts	EThekwini Municipality	South Africa
11465	4	19	4	20	The statement "Amongst Developed Countries, the urban share of total emissions increased from 60% in 2000 to 67% in 2015" seems to be drawn from Figure 8.10. To tally with the legend of Figure 8.10, it is suggested to revise "urban share of total emissions" to "urban share of national emissions".	Partially accepted. These values are based on the urban share of national CO2eq emissions in Figure 8.10 with marks that are provided for each region separately. The urban share of national CO2eq emissions varies between 54.2% to 72.0% in 2015 across these five regions (now being updated to six regions according to IPCC update for the chapter, possibly included as additional supplementary information in the manuscript).	SAI MING LEE	Hong Kong Observatory	China
65227	4	20	4	21	Perhaps the authors can include numbers here to highlight 'the significant change in emission metrics'	Accepted. Significant change is no longer used. The percentage change is now provided.	Karishma Asarpota	ICLEI World Secretariat	Germany
71919	4	23	4	27	Land and sea use.	Rejected. The chapter does not assess sea use	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21639	4	26	4	26	"Urban form interacts with policies and regulations to influence behaviour, choice, and patterns of urban energy consumption in everyday activities." we suggest adding also 'governance' with 'policies and regulations'	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
56199	4	28	4	33	Given Schoonover's recent report on ecological security, surprised there isn't a finding dedicated to the loss of non-human ecosystems and possible impacts to diseases and other socioeconomic and security impacts.	Reject. Not in scope of this Chapter	Government of United States of America	U.S. Department of State	United States of America
71921	4	28	4	33	How about the development in the coastal areas and the impact on marine ecosystems?	Reject. Not in scope of this Chapter	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
4483	4	29	4	29	Add ... forest .... 'Agriculture lands and Forests	Noted. The key message has been revised and inclusion of forests in main chapter body.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4937	4	30	4	33	As in the previos comment	Noted.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
84463	4	31	4	32	Any prediction of urbanization beyond 2050 has a large amount of uncertainty. I suggest you remove "and to 1.0–3.6 million km by 2100."	Reject. It is in the literature cited. Otherwise no prospects would be included in the assessment.	Jose Antonio Puppim de Oliveira	FGV	Brazil
1671	4	32			The ...65 Mtonnes.. Can be written in full as ...65 metric tonnes... to avoid possible confusion.	Rejected. 'MTonnes' = 'Mega Tonnes' in WGIII report, per TSU guidance. The TSU style guide requires we use 'MTonnes' for 'Mega tonnes.'	Sunday Abuje	University	Kenya
21641	4	32	4	33	The link between loss in crop production due to urban expansion and the emergence of new cropland is not explained. How exactly does the loss of agricultural land to urban areas result in new cropland?	Noted. This key message has been revised. Explained in text that urban expansion often takes place on agricultural land and thus leads to the need to expand new croplands to make up for the production loss.	Government of France	Ministère de la Transition écologique et solidaire	France
65229	4	32	4	33	Perhaps the authors can clarify here, where exactly is the 'expansion of 350000 sq. km of new cropland' - is this in urban outskirts or rural regions or elsewhere?	Noted. This has been clarified in the chapter text.	Karishma Asarpota	ICLEI World Secretariat	Germany
56201	4	34	4	35	Misleading and ahistorical to phrase as "building new cities". Agglomerations urbanize and develop on pre-existing settlements, and rarely do they get built. Rephrase.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
4485	4	34	4	39	consider Transformation in school of Thoughts of 'Planning New cities'	Noted.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
6963	4	37	4	39	Is this under business as usual?	Noted.	Debra Roberts	EThekwini Municipality	South Africa
11467	4	37	4	39	The figures "8.5 GtCO2 to 14 GtCO2 annually" do not tally with the figures presented in the main text (10-14 GtCO2 annually, P.31, line 10-12). Please check and revise as appropriate.	Accepted. Committed emissions from new urban infrastructure that includes buildings and road networks range from 8.5 GtCO2 to 14 GtCO2 per year by 2030 according to Erickson et al. 2015. The range in the second occurrence is updated.	SAI MING LEE	Hong Kong Observatory	China
28335	4	37	4	39	It would be good to know what share of the remaining carbon budget for 1.5/2 degrees C this amount of emissions represents. That helps greatly in contextualising the scale of the challenge for cities.	Accepted. Values on urban carbon budgets from scenarios are inserted.	Pomponi Francesco	Edinburgh Napier University	United Kingdom (of Great Britain and Northern Ireland)
71923	4	40	4	42	The decarbonisation strategy has to focus on the energy consumption during the overall product/material/service life cycle. For example we can save carbon on single glassed windows, but after we can spend a lot of energy during operation/maintenance. Therefore we can reduce energy consumption for material only if that does not increase future energy consumption during operation and overall lifecycle. Also saving on some materials we can decrease the useful life cycle of the equipment/device/building/engineering installation and today we have a problem then the equipment/devices (for example laundry machine) serve less years because of saving too much on some materials, so device becomes non reliable. The last phase in life cycle is demolition, which can be almost carbon neutral (for exp wood construction) or carbon very intensive if for example it requires high temperature processing or etc. Therefore bullet (1) "reducing urban demand for energy and materials" is a mix of reduction of energy demand (what in principle is a good objective) and reduction of energy for the materials, what is not always is good and is case sensitive.	Accepted. Cases where it is possible to reduce energy for materials without reducing energy demand is clarified to emphasize the context sensitivity.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
14257	4	40	4	45	It is important to be specific about the specific decarbonisation pathways for cities in the Executive Summary. The last paragraph lends itself to at least a brief mention of renewable energy, perhaps in the context of point (2) on switching energy supply to net-zero carbon. Or in the sentence that refers to "systemic transformation" in the same paragraph	Accepted.	Flávia Guerra	REN21	Germany
60619	4	42	4	43	The statement that "cities can achieve net-zero through deep decarbonization" is not supported by the evidence presented in the report, even assuming optimistic scenarios.	Noted.	Evyatar Erell	Ben-Gurion University of the Negev	Israel

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21643	4	43	4	43	A 'systemic transformation' that can be achieved by 1- working on urban morphology; 2- working on the balances of the urban metabolism; 3 - greening the cities	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
77113	4	45	5	44	The text acknowledges the global growth in population (~80m/y) and ongoing urbanization (~1.3m/week), all requiring massive resources to provide adequate subsistence conditions and, hopefully, better lifestyles; this will inevitable mean more, not less, emissions.	Noted	Jim O'Brien	Expert Reviewer AR6 SOD WG1	Ireland
7491	4		5		If possible ES should indicate the quantum of mitigation support required at the local urban level.	Noted. This is stated in the introduction but not ES.	Debra Roberts	EThekwini Municipality	South Africa
74983	4		6		The executive summarry should consider unpacking the scope of the chapter by highlighting what issues constitute urban systems and other settlements. This seems to be unclear from the executive summarry	Noted. Scope of chapter has been added to introduction.	Government of Kenya	Kenya Meteorological Service	Kenya
21635	4	13	4	13	About "45-87% depending on scope": this information is very interesting and it deserves to be developped. Why a so big difference?	Reject. Noted, but this is the Executive Summary	Government of France	Ministère de la Transition écologique et solidaire	France
9709	5	1	5	8	Are the post Covid-19 repercussions of future similar spread of pandemic diseases may actually discourage compact urban growth in favor of sparse growth?	Too early and not enough substantive research to include.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
79267	5	1	5	8	I suggest adding a new bullet with text such as this: Many common development policies and planning practices favor resource-intensive transport and buildings over more efficient alternatives, and sprawl over compact infill. These include limits on density, height and mix in residential neighborhoods; parking minimums in zoning codes; public provision of unpriced a underpriced vehicle parking; roadway design and funding practices that favor motorized travel over active and public transport; and development and utility fees that underprice urban expansion. Reforming these planning distortions can provide diverse economic, social and environmentla benefits, and help achieve social equtiy goals. As a result, these "Smart Growth" reforms can be considered no-regrets, win-win policies that are cost effective regardless of their emission reduction benefits. References: Kevin Fang and Jamey Volker (2017), Cutting Greenhouse Gas Emissions is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled, National Center for Sustainable Transportation (https://ncst.ucdavis.edu); at https://bit.ly/3qcOSAF. Chang-Tai Hsieh and Enrico Moretti (2017), Housing Constraints and Spatial Misallocation, University of California Berkeley and the National Bureau of Economic Research (www.nber.org); at https://bit.ly/3dPcxBt. Todd Litman (2014), Analysis of Public Policies That Unintentionally Encourage and Subsidize Urban Sprawl, commissioned by LSE Cities (www.lsecities.net), for the Global Commission on the Economy and Climate (www.newclimateeconomy.net); at https://bit.ly/2QqPhzc.	Partially accepted.	TODD LITMAN	Victoria Transport Policy Institute	Canada
82553	5	1	8	5	The compact urban development model is under scrutiny amidst COVID response and recovery. It would be important to mention that COVID-19 could affect the uptake of this model, due to new concerns related to potential for pandemic spread and public health conditions in highly dense urban environments. Although academic literature released thus far highlights that the way density spreads matters more than density itself, media attention and urban resident behavior suggests a potential flee from the compact and highly dense way of living and building. See https://www.un.org/en/coronavirus/covid-19-urban-world.	Reject. Statement comes from literature and Covid topics are addressed elsewhere, with large uncertainties; the experience with COVID has had a somewhat opposite effect, in that it has led to greater interest in the 15/20 minute city, not necessarily focused on density but on accessibility of uses through active transportation. Have added a new section on this, 8.4.3.5	Constabile Kerry	Oxford University School of Geography	United States of America
11469	5	2	5	4	The source of the statement "Total urban emissions based on consumption-based accounting are estimated to be 28.6 GtCO2-eq in 2020, representing about 70% of global CO2 and CH4 emissions" cannot be found in the main text. Please check.	Accepted. The value for 2020 is also inserted in addition to 2015.	SAI MING LEE	Hong Kong Observatory	China
4487	5	9	5	10	Add ... New settlements .... Add activity of 'Technical identification of additional patches' to house sprawl	Reject. Too specific for a summary.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
14259	5	9	5	10	In some fora (e.g. Race to Zero and the World Bank's Transforming Transport), the argument for "transit-oriented development" in cities has actually been heavily contested, at least in the past year. Several stakeholder groups and communities are advocating significantly for more people-centered urban design and planning. Rather than building cities for cars, we should focus on building cities for people. Improving mobility, rather than transport.	Reject, too specific, no literature cited, and discussion of mixed use neighborhoods is addressed in chapter.	Flávia Guerra	REN21	Germany
71925	5	9	5	11	Yes, in principle the co-location of high residential and high employment densities is a good idea, but there should be put attention that this relocation has to work related, so then you get a job in certain area, you get an apartment to rent close to it.	Reject, too specific and no related research.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71927	5	9	5	14	How about the sea use? Coastal settlements?	Reject. Coastal areas are more prone to impacts but this is a mitigation chapter	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21645	5	9	5	9	About "urban mitigation", please consider that expression "urban mitigation" is unclear; by "attenuation" should it be understood "reduction"? If yes reduction of what? Surface, energy consumption, CO2? In order to avoid this amiguousness, any occurence of the expression in the text should be modified as « urban GHG emission mitigation » or « urban mitigation of climate change »	Reject. Report is framed.	Government of France	Ministère de la Transition écologique et solidaire	France
21647	5	11	5	11	About "Compact cities [...]": It'll be better if you qualify this affirmation: rising the compacity comes back to increase the building volume which have noxious impacts. See what happens in Paris with the heater.	Reject: This is a summary.	Government of France	Ministère de la Transition écologique et solidaire	France
18373	5	12	5	12	Please consider replacing "zero emissions transport" with "zero emissions public or shared transport" to align with some of the earlier messages regarding reduction of energy demand and raw materials.	Accepted	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21649	5	12	5	12	It could be interesting to add the carpooling or the car-sharing which can appear a good solution when the car is necessary.	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
46927	5	15	5	21	in the folowing paragraphs the co-benefits are deeply linked to adaptation to climate change, while in this part this is not explicitly mentioned.	Noted	Valentina Palermo	JRC	Italy
71929	5	15	5	21	How about the NBS such as blue carbon, blue infrastructure, soft adaptation measures? Please include the aquatic and coastal realms as well.	Accepted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82343	5	15	5	21	I suggest to mention more types of ecosystem in this paragraph beyond urban forest, such as urban wetland, urban agriculture and green infrastructure; NbS is encompassing a number of ecosystem, but in the reality it is very easy to emphasize reforestation for NbS. In this case, if more dynamic examples could be mentioned here, it will reduce the misunderstanding on NbS for the readers.	Noted	Yinlong Xu	Institute of Environment and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences	China
18375	5	17	5	17	Should there be a caveat regarding the typology of trees such as a reference to native species? There is evidence to suggest that the type and mix of trees is important not just for carbon reduction but also air quality in urban settlements and ensuring that action for climate is also linked to other wider environmental goals is important (and a point which is being made in the report at large).	Noted	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21651	5	17	5	17	It is not made clear how urban trees reduce energy use.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
4939	5	17	5	18	The sentence should be reworded as it is badly written. The authors write: "Urban trees offer great potential to mitigate climate change as they sequester carbon as well as permanently reduce GHG emissions through reduced energy use". However, not only urban trees offer the potential to mitgate climate change, but trees in general. then it is written that urban trees reduce GHG emissions though reduced energy use; however, I think that authors mean that urban trees might mitigate UHI, reducing energy use for building summer cooling. Altogether, I suggest to review the sentence	Noted	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
131	5	18	5	18	It might be that the impact of NbS in reducing GHG emissions in the future might lower than expected in the past, especially referring to the urban forestry and green infrastructure (e.g. https://science.sciencemag.org/content/368/6494/eaaz9463).	Noted	Thomas Thaler	University of Natural Resources and Life Sciences	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
81305	5	19			I'm not convinced that this number of 217 Mt deserves to be in the executive summary. It implies that an assessment has been made of the maturity and/or urban planting rates all around the world. Could the authors please provide a confidence level for this number (my guess would be: low confidence, based on a single study and extremely simple extrapolation). I would in particular urge the authors to reconsider presenting this number in the Technical Summary.	Accepted	Andy Reisinger	Ministry for the Environment	New Zealand
4229	5	21	5	21	Recommend specifying health impacts (physical? Pschological? Both?) for "improving health" comment	Noted	Lee White	Australian National University	Australia
82555	5	22	26	5	This statement about city jurisdictional power deserves more nuance. This statement is highly dependent on whether the city sits within a highly centralized de a highly decentralized regulatory system with budgetary control. A city in India (e.g. Delhi) for example by and large does not have much power or budget on i own without the involvement of the State and Chief Minister. Suggest mentioning these system and regulatory caveats in order to achieve higher confidence and accuracy.	Accepted	Constabile Kerry	Oxford University School of Geography	United States of America
4213	5	22	5	22	This claim is far too general to be taken for God's word, especially since 'city' is left un(der)defined. Very few cities have the power suggested here. Note that this wild claim also contradicts the text on p 8 lines 16-20, and p 75 lines 42-46.	Accept and rephrase the sentence with another word	Marcel Wissenburg	Radboud University Nijmegen	Netherlands
4231	5	22	5	22	"Cities have the power to take climate action over their jurisdiction" is awkward wording; suggest something like "Cities have the power to support climate change mitigation within their jurisdiction"	Accept and rephrase the sentence with another word	Lee White	Australian National University	Australia
18377	5	22	5	23	This paragraph in the executive summary, whilst correctly asserting that cities can have control over policies this is not universal and often both in developed and developing countries, authority over regulations and actions to address climate change are not within city athuority control. This is referenced on page 58 in the chapter. Would be good to nuance the statement in the two lines that open the paragraph - for example 'Some cities have the power..' or 'Whilst not all cities have full control of policies an advtange to tackling climate change at the urban level is that many cities will have power to take climate action...'	Accept and rephrase the sentence with another word	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18379	5	22	5	23	Should this paragraph also reinforce/anticipate some of the subsequent arguments around sufficient resources for local government?	Accept and rephrase the sentence with another word	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21653	5	22	5	23	"Cities have the power to take climate action over their jurisdiction due to their ability to set regulations and policies related to land use (medium evidence, medium agreement)." It should be nuanced. This is not the case in all countries, because of the rules of governance, the competences for granting building permits or the ownership of land (for example).	Accept and rephrase the sentence with another word	Government of France	Ministère de la Transition écologique et solidaire	France
46947	5	22	5	23	local authorities can impact on mitigation because their jurisdiction on land policies, but not only. Policies to incentivise ,sinergies among departments for example for renewable enrgy sources…	Accept and rephrase the sentence with another word	Valentina Palermo	JRC	Italy
6965	5	22	5	26	Is this statement true for all or most cities? This statement contradicts several other assertions in this Chapter.	Accept and rephrase the sentence with another word	Debra Roberts	EThekwini Municipality	South Africa
71931	5	22	5	26	Land and sea use.	Noted. We have included coastal areas and blue spaces	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
4489	5	23	5	23	Administrative controls at the level of Region are executed with specific formulated Authorities …. Extent of concern thus be extended from administrative boundry of an isolated city to larger fabric as 'Region'	Accepted.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
71933	5	23	5	25	Building codes (as the Building Energy Performance Class, etc.) appear and are applicable mostly at the national level. I know some cases in India where city in parallel to the national regulation put some legal regulations and codes, but potentially these cases are an exception.	Accepted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
133	5	24	5	26	Besides the aspect of land use and spatial planning and building codes, I would even emphasis on the point of infrastructure (providing financial resources by public or private entities), such as providing public transport, green spaces, blue spaces etc. or encouraging other net-zero policy directions within various cities; besides many activities are focussing on urban areas instead of national programmes, such as climate network programs etc.	Accepted.	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
75593	5	26	5		End of paragraph: "The concept of a 15 minute-city, where everyone is able to meet basic needs within a distance, is gaining traction". C40, 2020, Mayors' Agenda for a green and just recovery, https://www.c40knowledgehub.org/s/article/C40-Mayors-Agenda-for-a-Green-and-Just-Recovery?language=en_US	Accepted.	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
9931	5	27		29	While this statement may be true at some points, it needs to be further clarified, i.e. that informality does not necessarily similar to slum and harnessing informality as such is beneficial if compared to large-scale redevelopment	Noted	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
7489	5	27		35	Need to indicate the scale of the informality opportunity/challenge e.g. UN-Habitat indicates that by 2050 up to 3 billion people could be living in informal settlements.	Accepted and added	Debra Roberts	EThekwini Municipality	South Africa
71935	5	27	5	27	The definition "Innovative Informality" can be new for the reader, so please explain what it is.	Noted and reworded.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
14261	5	27	5	35	Clarify which "disruptive technologies" this paragraph is referring to, e.g. renewable energy, energy efficiency, electric vehicles, heat pumps, potentially others?	Reject. No space in the ES to exemplify technologies	Flávia Guerra	REN21	Germany
18381	5	27	5	35	Is it possible to explain what is meaant by innovative informality?	Noted. This has been clarified.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18383	5	27	5	35	Is it necessary to refer to "disruptive technologies"? Some old technologies such as SMS have proven very effective in urban environments for emergency response for example. Applications don't need to be always disruptive to be inclusive and effective.	Reject. Sentence tells "in conjunction with other strategies"	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
6967	5	29	5	29	What is listed are options to achieve net-zero. What targets are you referring to?	Reject. Low and net zero, as sentence states	Debra Roberts	EThekwini Municipality	South Africa
4233	5	29	5	32	Very long sentence that is awkward to follow	Noted. This has been changed.	Lee White	Australian National University	Australia
21655	5	32	5	34	"Closing the development deficits in informal urban areas can avoid the business-as-usual trajectory of development and utilise innovations such as micro-sca technologies, decentralised utilities of water, sanitation, and service centres". The link with SDGs could be made more explicit, especially for developing countries and informal settlements.	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
71937	5	32	5	35	In this text is presented Business as Usual scenarios and the main focus is on Innovative technologies. Today the problem is not that we use too few innovative technologies, the problem is that the technologies we use today in cities in principle are outdated. The thing is that there are number of already proven and implemented technologies, so cities have to replace these outdated technologies they have today, so we can reduce GHG emissions and etc. to the expected level. These replaced technologies not necessarily are the most Innovative technologies. Innovative technology I understand as a technology which is absolutely new and not so widelly tested and implemented. Therefore first of all I would focus on switching from Outdated technologies to Nowadays most efficient technologies and only on the top if it possible to bring Innovative technologies (not everywhere something new and innovative can be invented - most cities in developing countries as Africa needs at least nowadays technologies). It is like switching from coal based boiler (Business As Usual) to the Heat Pump, what is a recent technology, but not an innovation. So Innovative Technologies are important, but first of all the problem is that we do not use in wide scale Nowadays Technologies (mostly I reffer to the biggest part of urban areas which mostly are in emerging economies, where our action can be most impactful).	Reject. The statemens covers other alternatives	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
18385	5	36	5	39	Should this be higher in the hierarchy since it is a key enabling condition?	Noted. This has been changed.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	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
70075	5	36	5	39	It needs to point out the role of multilevel governance more clearly and importantly and elaborate both 'vertical' and 'horizontal' interactions for climate governacne at local and community levels.	Accepted.	Sang-Min Han	Hallym University	Republic of Korea
82557	5	40	44	5	This paragraph is critical, as the lack of subnational financing from development banks and national governments hinders effective funding of urban climate action. A vital point is missing in this paragraph, however: to fill the funding gap, national governments + global, regional and national banks must increase grant and concessional lending to urban areas -- the solutions do not rest with city debt financing alone. (CCFLA 2015) This top-down and bottom-up financing solution for urban climate action is particularly important in light of the fiscal constraints cities are experiencing during COVID-19. https://www.un.org/en/coronavirus/covid-19-urban-world.	Accepted & Revised, associated with 8.5.3	Constabile Kerry	Oxford University School of Geography	United States of America
135	5	40	5	41	on this last point of the page you are talking about the need of multilevel & polycentric governance systems and substantive financing. A key problem to implement large and complex infrastructure projects, which are needed for decarbonisation, such as urban energy system, also needs to answer the question of land - how to deal with the scare resources of available spaces (or land resources) to reach all these goals, including affordable housing etc.	Reject. Good point, but addressed elsewhere in the Chapter. This statement is more about jurisdiction and financing	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
18387	5	40	5	43	The focus on debt financing assumes that all urban areas will be in a position to do it but it is likely that only a small number of big cities will be able to. Would it be better to focus on high quality integrated spatial plans that create cofnidence for private investment?	Accepted & Revised, associated with 8.5.3	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
4491	5	41	5	41	Add Urban Management	Reject	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
71939	5	42	5	43	Many examples show that cities do not play a pivot role in funding and debt financing. One of the issues why the projects are not implemented into reality today is that the city government decision may be taken only up to the certain financial cap level. Usually the situation is that the municipality already has a big debt (for exp. more than 100% of city budget), so it cant finance very big projects as the financial institutions are asking for guarantees, and the city does not have more means to provide these guarantees, so debt of a city may not increase a lot, so only small projects covered by local municipal utility companies (as District Heating Utility company) happen into reality, what has a relatively smaller climate impact. In this case the National Government plays important role providing state guarantees and etc.. Example: potential volume of district heating rehabilitation in one of Ukraine cities is >100 mln EUR, but city can take a loan only at 10 mln Eur (it depends on the revenue level of the district heating utility company). The issues can be fixed at National Government level providing guarantees/subsidies.	Accepted & Revised, associated with 8.5.3	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
66899	6	3	6	10	Suggest to directly state the importance of the role of cities to achieve climate change mititgation goals and attaining international goals, such limiting global warming to 1.5 degrees, as stipulated under the Paris Agreement	Accepted	Lea Ranalder	REN21	France
66901	6	11	6	19	I am missing the links and causality between rising energy use in cities and share of population. It would be helpful to mention that share of energy used in cit has grown (In 1990, cities accounted for less than half (45%) of global final energy use), particularly due to urbanisation, population growth and rising urban economic activity. In addition, cities are responsible for global energy use that does not actually take place in their boundaries through their supply chains, construction material, etc.	Rejected. No reference cited to back up this strong statement	Lea Ranalder	REN21	France
4941	6	15	6	16	As in the comment at line 18	Noted	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
49589	6	15	6	17	The urban population in various countries are computed with different definition of urban areas. In India large village crossing a population threshold is declared urban. villages in pheriphery of urban areas get added or absorbed to urban jurisdiction hence overnight they get added to urban areas. does this translate to a type of lifestyle or built form or urban morphology is questionable. https://www.downtoearth.org.in/coverage/urban-villages--an-oxymoron-13014, Mukul Kumar (2015) Erstwhile villages in urban India, Development in Practice, 25:1, 124-132, DOI: 10.1080/09614524.2015.986066, https://www.indiaspend.com/indias-missing-middle-24000-villages-with-populations-greater-than-towns-lose-out-on-policies-for-urban-areas/	Accepted, but already incorporated in the scoping	Satyaprakas Das Das	Manipal Academy of Higher Education	India
6133	6	16	6	18	Following literature supports the sentence of relationship between urban settlements and climate change. - Solecki, W., Delgado Ramos, G.C., Roberts, D. et al. Accelerating climate research and action in cities through advanced science-policy-practice partnerships. npj Urban Sustain 1, 3 (2021). https://doi.org/10.1038/s42949-021-00015-z	Reject. Noted, but this reference brings only general aspects	Masanobu Kii	Kagawa university	Japan
11903	6	21	6	22	To put transformation is correct perspective the social connotation and political intent are rather crucial as they govern these four fundamental systems, thus the four systems to be dovetailed with the said and through an inter-disciplinary approach the transformation documented such shall be closer to the ground reality.	Noted.	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
16445	6	25	6	25	"places" sound vague to cleary see differences from "cities"	Reject. Consistent with original source, IPCC 2019	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
9929	6	32	13	29	References are made to: 1.Statement in page 8-5 line 22-26 mentioned : “Cities have the power to take climate action over their jurisdiction due to their ability to set regulations and policies related to land-use” 2.Statement in page 8-13 line 25-29 mentioned : “Transformative action in cities in developing countries may not be realized without effective governance mechanism in high carbon lock-in” 3.Statement in page 8-6 line 32-38 mentioned: “….with the inclusion of SDG 11 on Sustainable, Safe, Resilient and Inclusive Cities….” It is about the Cities that have "the power" to take climate action, but certainly action taken in developing countries will be not the same as an action carried out in developed countries. It is associated with the need for "effective governance mechanism”, as a keyword for developing countries in taking action that are needed to achieve the goal of SDG 11 of building the cities and settlements that are inclusive, safe, resilient and sustainable. Challenges that face is among others the need to prepare comprehensive data (things that rarely exist in developing countries), should be science based, and to the need to increase the capacity of the implementers who come from various stakeholders. This should be done in order to obtain commonality of understanding and capacity, either from the government, academia , business and the general public. It also needs a strong commitment through leadership that understands the concept of "inclusive, resilient and sustainable "; as well as consistency in the implementation of the concept . In addition, it also required an understanding that there will not have the same concept be applied in other locations , given the differences in the characteristics of the socio-economic-cultural in every region in Indonesia. So, all steps must be based on the results of local surveys (both physical and non-physical aspects) in the spirit of collaboration among stakeholders with strong and consistent leadership .	Reject. Consistent with original source	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
18389	6	32	6	34	Could the authors please consider adding that the galvanisation of efforts to make progress towards this SDG are represented by the reinforcement of institutional capacity/structures, particluarly in the Global South. For example, Ghana's implementation of a National Urban Planning Policy and positioning of its National Development Planning Commission (NDPC) as a central body for driving forward SDG implementation.	Noted. SD Chapter related	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
6969	6	38	6	38	The IPCC co-sponsored a conference on cities and climate change in 2018 is another important development that is worth mentioning here.	Accepted	Debra Roberts	EThekwini Municipality	South Africa
11905	6	40	6	41	Thrust to include and may be focus on the root causes that shall enable to reduce the measures for mitigation and may be eradicate a few as well.	Noted	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
79215	6	43	6	46	This section of paragraph and on following page is repeated on pg 8 line 44 - 47 an pg 9 line 1 - 3.	Noted and corrected	Martino Tran	UBC	Canada
71941	6	46	7	2	Could you confirm/ensure the nexus also includes the land-sea nexus.	Reject. Not clear about how this relates to mitigation GHGs in urban areas	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21657	7	3	7	3	Please consider to "[...]. Research gaps have been identified regarding the complex operation and political management of infrastructure integration required by nexus approaches. (Monstadt & Coutard, 2019). There is also [...]" Monstadt, J., Coutard, O., 2019, Cities in an era of interfacing infrastructures: Politics and spatialities of the urban nexus, Urban Studies DOI 10.1177/0042098019833907	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
46931	7	7	7	33	This part focuses on the relationships between cities'mitigation strategies and participation to global networks, with an insight on the networks themselves. Although this is a key aspect of the strategies of cities, is this is the only change from AR5? the GCoM was launched in 2016 but cities were aready part of other networks, for example the EU covenant of MAyors that started in 2008. The GCoM is undoubtedly contributing to give a unique voice and gather under a single umbrella the methodology, which allows for the estimations reported. the role of networks and of GCoM can be highlighted in the other sections, particularly the governance. Moreover, Some sentences can be rephrased.	Accepted	Valentina Palermo	JRC	Italy
66907	7	7	7	7	Add why this is being done: to raise their voice, increase their advocacy capacity and sharpen their role in the climate, sustainable development and energy debates, this has also offered a platform for effective information and resource exchange and inspiration	Reject. Policy prescriptive.	Lea Ranalder	REN21	France
16431	7	8	7	26	The five bulleted paragraphs have duplicate sentences, which need to be removed from the text: specifically, the line 8~12 and the line 26~30 and the line 13~14 and line 18~19 are the same.	Noted and corrected	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
2213	7	8	7	33	The last bullet point appears to make the points from the first bullet point and then expand uppon them. It might be better to combine these points and remove the repitition.	Noted	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
66905	7	8	7	33	Some of the things listed are work of city networks, other are iniativies. It would be helpful to make this clearer. In addition, I suggest to include that cities are also taking action on scaling up renewable energy.	Noted	Lea Ranalder	REN21	France
83985	7	8	7	33	infrastructural changes, urban heat island reduction could be explicitly mentioned, actually, l.13-14 is contained in 18-25 and l.8-12 in 26-33.	Noted	Tomáš Halenka	Charles University	Czech Republic
11907	7	9	7	10	The system of governances varies across nations and thus their cities and although the chair of Mayor may exist but not necessarily the decision making authority thus when global covenant occurs the key decision making authorities to be included so that desired targets of IPCC are delivered. Observation :- urbanising cities in Asia NOW may well be low for energy demand and carbon emissions when calculated per capita but the gauge may be reviewed for the built up area; and the per capita of standards system equated with built up areas for Asian nations shall enable to assess the accurate ground reality situation for building sector.	Reject. I understand this comment as under Multilevel Governance	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
66903	7	10	7	10	GCoM now has more than 10,500 members. Suggest to include the year that you are referring to. Also most of these cities are in Europe, it would be helpful to include this for framing purposes.	Accepted.	Lea Ranalder	REN21	France
16447	7	14	7	19	needs "-" between "policy" and "makers"	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
56203	7	15		16	"Many cities -- more than 800 -- have made ...": Can authors provide a percentage?	Reject. There are different numbers presented throughout the literature, and in the IPCC list/database, so we decided not to present a precise number. This is the report that is cited https://newclimate.org/wp-content/uploads/2020/10/NewClimate_NetZeroReport_October2020.pdf	Government of United States of America	U.S. Department of State	United States of America
46929	7	15	7	17	Many cities- around 800- worldwide? According to which database? Which is the target year?	Reject. There are different numbers presented throughout the literature, and in the IPCC list/database, so we decided not to present a precise number. This is the report that is cited https://newclimate.org/wp-content/uploads/2020/10/NewClimate_NetZeroReport_October2020.pdf	Valentina Palermo	JRC	Italy
56205	7	18		26	Can authors indicate by how much these commitments are growing? Also the percentage of cities?	Reject. There are different numbers presented throughout the literature, and in the IPCC list/database, so we decided not to present a precise number. This is the report that is cited https://newclimate.org/wp-content/uploads/2020/10/NewClimate_NetZeroReport_October2020.pdf	Government of United States of America	U.S. Department of State	United States of America
21659	7	26	7	27	This fifth bullet point is the same as the first bullet point on Line 8 just above.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
71943	7	26	7	30	Information about GCoM already was presented in the lines 8-12 above of the same page 7.	Accept	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
16449	7	29	7	29	check the tense of "reached"	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
2215	7	34	7	42	Title is AR7, but line 42 is AR6 cycle and beyond. Is this difference in number correct (I am unsure).	Noted	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
46933	7	34	8	14	more importance should be done to the integrated system of cities, to the relations between mitigation and adaptation in tackling climate change. The gap is also linked to the understanding of the success of measures impelmented and and on the study of co-benefits. In particular when talking about nature based.	Noted	Valentina Palermo	JRC	Italy
21661	7	40	7	40	The expression "a deep dive" is unclear.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
56207	7	43	8	5	Some of this text could be moved to a gaps in knowledge section at the end of the chapter.	Noted	Government of United States of America	U.S. Department of State	United States of America
74985	7		7	16	Consider including some of the key sectors & cities that have made commitments to achieve net-zero emissions	Rejected; the chapter is a balanced assessment of possibilities in all types of cities	Government of Kenya	Kenya Meteorological Service	Kenya
60621	8	1	8	1	The text "the potential of informality and for avoiding lockin" is out of context, and its meaning is unclear.	Noted	Evyatar Erell	Ben-Gurion University of the Negev	Israel
21663	8	3	8	4	It is also necessary to take in consideration what is asked in the legal approach of urban planning.	Rejected; not a clear comment as it is difficult to understand what 'asked in legal approach..." means. But legal frameworks are addressed in later section and synthesized in chapter 13	Government of France	Ministère de la Transition écologique et solidaire	France
137	8	4	8	6	I would even say, more challenge and open question is how to implement NbS on existing cities in terms of ownership/conflicting renting, see for example green gentrification, but also in terms of building constructions - many buildings within urban areas cannot implemented green roofs etc. especially in a quite large amount of European cities	Noted	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
2217	8	5	8	5	"Kavonic and Harriet Bulkeley, submitted" should be "Kavonic and Bulkeley, submitted" the references in the line below also include the year 2021.	Edited	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
10699	8	5	8	5	"especially for cities that have yet to be built"? At the same time, is it not urgent to develop mitigation actions for already existing settlements, which shall still be with us for a large number of decades? And the more so because obviously it is easier to integrate mitigation actions in cities to come than in existing ones.	Partially accepted; neither existing or yet to be built cities can easily intgrate mitigation responses due to various factors but emerging cities are a window of opportunity. It is also widely cosidered urgent to decarbonize existing settlements	Philippe Waldteufel	CNRS	France
52291	8	5	8	5	"Kavonic and Harriet Bulkeley, submitted" Check also whether it is 'in press' or 'submitted' as both are seen in the report. Delete 'Harriet'.	Edited	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
80529	8	5	8	5	Add after L5: and more generally the aggregated performance due to the strong heterogeneity of the natural and built environments (Qiu et al, 2020).	Edited	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
16437	8	5	8	8	To ensure the IPCC report's integrity, citing references "in press" only would be desirable. Several references are at the stage of submission and if those references are still under review at the time of its publication, they might need to be removed from the main text.	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
11909	8	12	8	14	Rather than full suite of mitigation options for the Asian nations as Lack of literature/ meta studies/ research/ data / transparency of information. without this background information any mitigation measures may not be effective; as it may be faster to know and understand the causes and effects so as to diagnose appropriate mitigation measures.	Noted	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
4493	8	15	13	8	Add reference: Bharat A, Sharma D 92007) "Climate Change and Cities: what it means to us and how India addresses the issue ", - Spacio Economic Development Record (SDR), Vol. 14, No. 4 July - Aug.07, Page no. 5 – 13, ISSN 0971 - 4944	Noted	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4495	8	15	13	8	Add Reference : Ahmad S, Bharat A (2012), Effects of Highrise building complex on the wind flow patterns on surrounding pockets,International Journal of Engineering Research and Development,Volume 4, Issue 9 (November 2012), PP. 21-26, e-ISSN: 2278-067X, p-ISSN : 2278-800X, http://www.ijerd.com/paper/vol4-issue9/D04092126.pdf	Rejected; 2012 is before AR5	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4497	8	15	13	8	Add Reference : Jaiswal A, Bharat A (2015), Assessing Innovative Approaches to Urban Solid Waste Management , Spatio Economic Record special issue on Solid waste management, Vol.22 No.4/5 July – Oct 2015, Page no. 89 – 96, ISSN 0971 – 4944	Noted	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
56209	8	15	9	9	Isn't this an "urban systems and other settlements" chapter? Suggest revising particularly Sections 8.1. and 8.2 to reflect the mandate of the chapter. For instance, authors could explain to the reader why a "systems" approach is useful to analyze cities and other settlements.	Edited	Government of United States of America	U.S. Department of State	United States of America
70077	8	15	9	9	It would be helpful to add a figure in order to provide a better understanding of "Why focus on urban systems?" Recommendable: Figure 1. Levels of an urban system (Source: from: van Aswegen M., Drewes J.E., van der Linde E. (2020) Regional Resilience: An Urban Systems Approach. In: Bougdah H., Versaci A., Sotoca A., Trapani F., Migliore M., Clark N. (eds) Urban and Transit Planning. Advances in Science, Technology & Innovation (IEREK Interdisciplinary Series for Sustainable Development). Springer, Cham. https://doi.org/10.1007/978-3-030-17308-1_12	Noted	Sang-Min Han	Hallym University	Republic of Korea
84467	8	15	9	9	The focus on urban system is important as emphasizes the connection among several aspects, but at the same time it is difficult to find system-wide solutions as the solutions are sectorized. There are criticisms on the way cities are analyzed as an ecosystem, as plays down the characteristics of urban change as based on economic, political and social drivers. I suggest you play down the idea of urban system and mention it as one of the approaches.	Edited; the challenge is recognized but the chapter outline was approved with 'urban systems' and we devote the integration of sectors in cities and beyond through out the chapter for synergies and co-benefits of intersectoral mitigation interventions. refer to lines 36-41 page 8 for the systems integration approach	Jose Antonio Puppim de Oliveira	FGV	Brazil
49591	8	16	41	8	These paragraphs talk about two urban system approach, there is a need to substantiate the requirement of these two specific urban systems and why not more.	Rejected: the two are 'concepts' not approaches. that is 'system of cities' and 'urban system'. both are applied to an approach of integrating sectors as well as cities and otehr settlements for mitigation options	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65083	8	22	8	24	This sentence is very vague. It would be nice for the authors to elaborate what interactions and feedbacks are there that result in both intended and unintended impacts on emissions.	Edited	Karishma Asarpota	ICLEI World Secretariat	Germany
21665	8	24	8	24	The city is an ecosystem dependent on the outside because it imports practically all its resources and rejects practically all of its waste. The evaluations by the methods of urban metabolism show that this dependence on the exterior is the main emission factor of GHC (Dijst et al., 2018; Carreón and Worrell, 2018; Restrepo and Morales, 2018)	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
4067	8	25	8	27	For this segment, please include reference to the work of Jane Jacobs, Christopher Alexander and Nikos Salingaros	Noted	Zaheer Allam	Deakin University	Mauritius
21667	8	25	8	27	"The notion of a "system of cities" has been around for nearly 100 years and recognises that cities are interdependent, such that significant changes in one city such as economic activities, income, or population, will affect other cities in the system" These definitions probably lack two important points that have significant implications for emissions. 1. The concept of the global city developed by Saskia Sassen, which allows us to consider the effects of interdependencies between cities of the same rank that control globalisation. In particular, this notion allows a distinction between the classical urban hierarchy, based on tpopulation and basic services, and the system of global cities, strongly interconnected by transport and telecommunication networks at global scale, with a high density of infrastructure, flows and mobility at local scale. 2. The concept of megacities, which refers to population and urban sprawl associated with very rapid urban growth, which raises, among other things, the challenge of network expansion and informal and illegal housing.	Rejected; it is actually the interdepdence between cities and witin cities as well as withother settlements in between that underlies this notion. emissions discussions are in a separate section that acocunts for these interdependencies in respect to the scope 1,2&3 with recognitio of limitations of acounting for emissions	Government of France	Ministère de la Transition écologique et solidaire	France
49593	8	25	8	27	there is a very important link of cities with hinterland and system of villages. this relation is for labour, food, waste management and supply of water. which means cities cannot survive without them or fail to work without them. natural resources are consumed and/ or abused like water, agricultural produce, wast water etc. which affects the economy, health, life of people in hinterland and villages. Rondinelli D, (1983), Towns and small cities in Developing countries, Geographical Review, 73(4), 379-395, doi:10.2307/214328, https://www.sciencedirect.com/referencework/9780080430768/international-encyclopedia-of-the-social-and-behavioral-sciences, M.A. Hughes, Urban Life: Future Developments, Editor(s): Neil J. Smelser, Paul B. Baltes, International Encyclopedia of the Social & Behavioral Sciences, Pergamon, 2001, Pages 16029-16031, ISBN 9780080430768, https://doi.org/10.1016/B0-08-043076-7/04417-X. (https://www.sciencedirect.com/science/article/pii/B008043076704417X), L.S. Bourne, Metropolitan Growth and Change: International Perspectives, Editor(s): Neil J. Smelser, Paul B. Baltes, International Encyclopedia of the Social & Behavioral Sciences, Pergamon, 2001, Pages 9760-9765, ISBN 9780080430768, https://doi.org/10.1016/B0-08-043076-7/04415-6. (https://www.sciencedirect.com/science/article/pii/B0080430767044156)	Noted	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65065	8	29	8	29	Pirate cities can be explained as urban areas similar to urban enclaves that exert dominance over the surrounding hinterland, a common development relic in small former colonial territories that disproportionately influence emissions because services are concentrated there such as in the case of small islands. This illustrates the overarching argument for mitigation in cities.	Noted	Karishma Asarpota	ICLEI World Secretariat	Germany
7923	8	32	8	35	An interesting (though not fully official) hierarchical classification of cities is the Chinese city "tier" system (1,2,3).From the most developed/demanding/populated to the lowest.	Noted	Rocco De Miglio	Energy analyst and modeller	Italy
63749	8	33	8	33	Remaining carbon budgets of 310 and 390 Gt CO2 are given for 'well below' 1.5C. These remaining carbon budgets should be traceable and consistent with WGI conclusions. In the draft WGI SPM (Table SPM.3), the remaining C budgets are provided for different temperature targets (i.e. for 1.5C0, not for 'well below 1.5C'. Please ensure consistency with WGI. Also, please clarify what the 2 ranges given are (715 (546-909) GtCO2 and 658 (445-892) - are these for committed FF infrastructure LIFETIME and UTILISATION separately?	Reject. Although relevant it is not in the scope of this chapter	Government of Canada	Environment and Climate Change Canada	Canada
11911	8	33	8	34	The current status does depict that rate of urbanisation in small and medium towns and cities is highest and due to its limited scale the trend of growth and developments are largely inline with the megacities but when duplicated such across most of the urban areas shall prove to be high on energy and its related impacts. Nations with poor and developing economies, with limited resources priority is to develop and follow the convention due to ease of execution thus often lack to address climate change.	Noted	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
139	8	35	8	35	Here, you might also add the aspect of urban-rural interlinkages, which you are also explaining later in the chapter	Edited	Thomas Thaler	University of Natural Resources and Life Sciences	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
6135	8	36	8	41	the interaction of urban form and infrastructure is studied in the field of urban economics and "land-use and transportaiton interaction models". Following literature supports this sentence. - Wegener M., 2004. Overview of land use transport models. In: Hensher, D.A., Button, K.J., Haynes, K.E., Stopher, P.R. (Eds.), Handbook of transport geograph and spatial systems, vol.5. Elsevier, Amsterdam. - Acheampong, R.A. and Silva, E., 2015. Land use-transport interaction modelling: A review of the literature and future research directions, Journal of Transport and Land Use. 8 (3), pp.11-38. - Anas A., Liu Y., 2007. A regional economy, land use, and transportation model (RELU-TRAN): Formulation, algorithm, design and testing. Journal of Regional Science, 47, 415–455. - Simmonds, D., Waddell, P., Wegener, M., 2013. Equilibrium versus dynamics in urban modelling. Environment and Planning B, 40, 1051–1070. - Kii,M., Nakanishi,H., Nakamura,K. Doi, K.,2016. Transportation and Spatial Development: An overview and a future direction, Transport Policy, 49, 148-158, .	Noted	Masanobu Kii	Kagawa university	Japan
17251	8	36	8	41	The city water management model needs a real ecological transition in water planning and management. This area must be in tune with economic rationality, ecosystem protection and real and active public participation. What is serious is the continued reduction of available water resources and an increase in the frequency, intensity and extent of droughts and floods. It is necessary to avoid an environmental and water collapse becomes equally visible in many cities. It is necessary to promote a series of measures that prioritize water management aimed at achieving a good state of rivers, aquifers, wetlands and coasts, and thus ensuring sustainability in the use of this resource. Establish a timetable to discard, stop and reverse all scheduled hydraulic infrastructures contrary to the ecological transition, reassessment of the environmental, social and economic viability of all these infrastructures, counting on citizen participation. http://www.asoaga.com/wp-content/uploads/2020/02/Hacia-una-financiacion-mas-eficiente-de-las-infraestructuras-del-ciclo-urbano-del-agua-en-Espa%C3%B1a.pdf	Reject. Noted, but no reference was sent to back this up	carlos ramirez	AFA-ANDALUCIA	Spain
2209	8	38	8	40	Can you please add the following reference to this statement? (Song, Y., Long, Y., Wu, P. and Wang, X., 2018. Are all cities with similar urban form or not? Redefining cities with ubiquitous points of interest and evaluating them with indicators at city and block levels in China. International Journal of Geographical Information Science, 32(12), pp.2447-2476.)	Rejected; we assess all available literature on all countries as available	Yongze Song	Curtin University, Australia	Australia
16451	8	42	8	42	needs "-" between "kick" and "starts"	Rejected	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
46941	8		8		Palermo and Hernandez, 2020is no tlisted in the reference list : Palermo V, Hernandez Y (2020). Group discussions on how to implement a participatory process in climate adaptation planning: a case study in Malaysia . ECOLOGICAL ECONOMICS, vol. 177, ISSN: 0921-8009, doi: https://doi.org/10.1016/j.ecolecon.2020.106791	Rejected	Valentina Palermo	JRC	Italy
74989	8		8	35	Consider bringing in the vulnerability of informal settlements than just leaving it to settlements	Noted	Government of Kenya	Kenya Meteorological Service	Kenya
75595	9	1	9	3	Suggestion after energy-food nexus, "as well as urban accessibility and closing the loop nexus". Ref: EEA European Environment Agency, 2020, "Urban Sustainability in Europe: Environmental challenges and opportunities - analysis of priority urban sustainability nexuses", Draft report 3.1. October 2020.	Noted	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
4235	9	5	9	5	consequesces "for" not "in"	Rejected; 'in' is in reference to the listed sectors and refering to emissions	Lee White	Australian National University	Australia
65085	9	5	9	6	In this line, authors mentioned negative and positive impacts of urban mitigation. It would be appreciated for the authors to mention or to give a few examples of those impacts and connect it with the sections 8.2 and 8.4 as the impacts are expanded in detail in those sections.	Accepted	Karishma Asarpota	ICLEI World Secretariat	Germany
56211	9	8	13	10	Most of what is included in this section was already covered in the WGIII AR5 urban chapter. Focus instead on what is new -- e.g., the emphasis on informality.	Reject. The Chapter incorporates informal settlements	Government of United States of America	U.S. Department of State	United States of America
7925	9	9	9	9	Avoiding trade-offs is simply impossible. The best decision makers can do, is to be aware and judiciously select how to deal with the trade-offs (and balance potential negative impacts).	Reject. Noted semantics	Rocco De Miglio	Energy analyst and modeller	Italy
56213	9	11	11	14	Although the UN refers to national definitions of "urban", these are inherently flawed calculations. Countries can have data that are decades old. The mobility of people in urban areas also skews the outcomes. Add a caveat about how "urban" is calculated. Refer to Brenner and Schmid, 2014: The Urban Age in Question.	Reject. Urban system defined previously in 8.1.3	Government of United States of America	U.S. Department of State	United States of America
66909	9	11	9	15	Please add a definition of urban areas.	Accepted.	Lea Ranalder	REN21	France
66911	9	14	9	23	Please consider to add the concept of the urban-rural continuum and at least acknowledge that new definitions of urbanisation are available, see OECD publication from 2020: Cities in the World : A New Perspective on Urbanisation	Reject. Urban system defined previously in 8.1.3	Lea Ranalder	REN21	France
4943	9	15	9	16	As in the comment at line 18	Noted. Comment is unclear.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
65071	9	18	9	18	Urbanisation' is defined as 'low level' if it is lower than 35%. Is urbanisation referring to the population size or the percentage of how much the country is defined as urban vs rural? From the figure it also appears that there are countries with a low level of urbanization that also have high incomes. Clarification is needed.	Rejected; the figure clearly shows all high income countries are above 35%	Karishma Asarpota	ICLEI World Secretariat	Germany
49595	9	19	9	25	This paragraph refers to a clear positive correlation between the level of urbanisation and income levels. Clarity also has to be given on the countries with high level of urbanisation and low-income level as well as low level of urbanisation and high-income level. Fig no. 8.1	Noted	Satyaprakas Das Das	Manipal Academy of Higher Education	India
4237	9	23	9	23	missing "and" in the "correlation between the level of urbanisation [and] income levels"?	Edited	Lee White	Australian National University	Australia
21673	9	23	9	23	It is clearly demostrated that there is a relation between Individual city sizes with local human capital accumulation and knowledge spillovers because wealth is generated in cities and is a factor of attraction through migration. It is a phenomenon of permanent accumulation, which is at the origin of the creation of cities. This means that the accumulation of urban capital is inexorable in the coming years. (Krugman, 1996; Vernon Henderson, 1999; Storper & Scott, 2009)	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
52295	9	24	10	1	Figure 8.1 is difficult to see in two pages. Please make it clear.	Accepted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52293	9	24	86	1	Almost all figures and tables in this chapter are too hard to read or of low quality because they are blurry, or the text is too small. For instance, check figures 8.2, 8.3, 8.5, 8.7, 8.8, 8.9, 8.14, 8.18, 8.22, 8.23, 8.26.	Noted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
16453	9	25	9	25	What does the y-axis of the graph (proportion urban?) indicates?	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21671	9	47	10	3	The sentence beginning "In particular, the nexus approach..." is a repetition of the sentence from Page 6 Line 46 to Page 7 Line 3.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
21669	9	47	9	47	Concerning the nexus approach p8 L.47, the nexus between energy, metals and building minerals is missing. Indeed, the extraction of metals and construction are two very voracious sectors in energy consumption.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
1673	10	2			Have ..(GNI) after the Gross National Income to easily associate it with the GNI abbreviation in the table	Noted	Sunday Abuje	University	Kenya
10701	10	2	10	2	While the information on the horizontal scale being logarithmic is welcome, may we have some graduations on this horizontal axis?	Noted	Philippe Waldteufel	CNRS	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21675	10	2	10	2	It may be interesting to plot the growth of urbanization against the growth of GDP, which shows that developing countries have faster growth.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
49597	10	7	10	9	cost of environment not included in calculation and improper calculation of produce from villages may lead to assumption that more urban area is equal to more income. https://www.researchgate.net/publication/315694978_The_costs_and_benefits_of_urban_development_A_theoretical_and_empirical_synthesis#fullTextFile Content, Quantifying the Costs of Urbanization May 2017 DOI: 10.13140/RG.2.2.29102.15682 Affiliation: Columbia University Project: Minimal Urbanism Alejandro De Castro MazarroAlejandro De Castro MazarroAdelaida AlbirAdelaida AlbirJose Gabriel LemaitreJose Gabriel Lemaitre, Yashesh Panchal,	Noted	Satyaprakas Das Das	Manipal Academy of Higher Education	India
1675	10	11			consider having ([see Figures 8.2 and 8.3] UN DESA, 2019) instead of two brackets next to each other.	Edited	Sunday Abuje	University	Kenya
65073	10	11	10	11	Figure 8.3 does not contribute to the point this paragraph is trying to make, which states that 'the geographic concentration of the world's current urban population is in emerging economies and the majority of future urban population growth will take place in low- and low-to-middle-income countries.' Please re-visit.	Noted	Karishma Asarpota	ICLEI World Secretariat	Germany
21677	10	16	10	16	because we can think that small and medium-sized towns will have a greater ability to adapt because of the flexibility that characterizes them.	Edited	Government of France	Ministère de la Transition écologique et solidaire	France
2219	11	1	11	1	Would it be possible to use a common colour key to allow comparability from the left to the right?	Noted	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
43267	11	1	11	5	do these projections contemplate migrations?	Noted	Government of Chile	Ministry of Environment	Chile
21679	11	2	11	2	Figure is difficult to read: the correspondence country-color is not easy to read, arrows would help	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
141	11	7	11	14	is it possible to make a link between where people are actually moving under the current Covid-19 pandemic; in some regions, people are moving faster-out from big cities towards peri-urban area.	Rejected; we assess published literature and there is yet to be literature on current movements	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
83987	11	10		11	but the populatin in these megacities is growing the fastest	Noted	Tomáš Halenka	Charles University	Czech Republic
21681	11	10	11	10	We suggest defining the term "megacities".	Rejected; the same line defines it as cities with 10 million or more inhabitants	Government of France	Ministère de la Transition écologique et solidaire	France
21683	11	10	11	10	About "megacities": It is also necessary to distinguish between population and density. Some cities have the same population, but a very different spatial extent.	Noted; we discuss density under urban form	Government of France	Ministère de la Transition écologique et solidaire	France
4069	11	11	12	14	Please uniformise the term megacity. In one place it is written as 'megacity' and another as 'mega-city'	Noted	Zaheer Allam	Deakin University	Mauritius
4499	11	14	11	14	Add Figure on Land demand, Natural Resources chsnges and Ecosystem services ... refer to works of other platforms like IPBES	Rejectd; chapter 7 covers this	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
21685	11	14	11	14	but more flexibility which allows a better adaptation	Rejected; mitigation of financially under resourced cities is covered	Government of France	Ministère de la Transition écologique et solidaire	France
1439	11		11		figure 8.2 has low quality	Noted	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
3197	11		11		figure 8.2 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	Noted	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
43435	11		11		figure 8.2 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	Noted	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50341	11		11		figure 8.2 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	Noted	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
2221	12	1	12	1	The pie chart does not appear to match its description as it has 4 segments, not 2.	Noted	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
64215	12	3	12	12	Figure/Table's title should be clear. It is more than 2 sentence. Mayble a new paragraph is needed to exolain as in Figure 8.3. also ini Figure 8.4, 8.7, 8.14. 8.22	Noted	Ova Candra Dewi	Universitas Indonesia	Indonesia
43269	12	8	12	12	Is the country-city migration rate known by country?	Noted	Government of Chile	Ministry of Environment	Chile
21687	12	14	12	18	This fourth point on largest cities might be placed before the third point on small and medium sized cities on Page 11 to correspond with the urban hierarchy.	Rejected; small to large or large to small either way is possible	Government of France	Ministère de la Transition écologique et solidaire	France
21689	12	17	12	18	About "Moreover, there is evidence that the largest city in each country has an increasing share of national population and economy." This is not always the case.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
21691	12	17	12	18	The idea is that, strictly speaking, a distinction should be made between the phenomenon of urban growth and that of metropolization. There can be a decoupling between population growth and GDP growth, since population growth often leads to urban sprawl, while metropolization leads to an increase in emissions, particularly from energy and transport. The phenomenon of declining cities should also be highlighted, particularly for certain industrial cities (the best known is Detroit), which is also cited in the report. As a counter-example, in Germany, Berlin is more populated than Cologne or Frankfurt, but concentrates less wealth. It is the same in Italy with Rome and Milan. There is an overall increase in the concentration of population and wealth in the most populous cities, but population growth can be much faster than GDP growth, and conversely, the most populous cities are not always the richest in the country. On the other hand, the process of metropolization is cumulative: the richest and most productive cities concentrate more and more wealth and people. We then find very strong inequalities at sub-urban scales.	Rejected. Such distinction is not clear in the literature and addressed as "growth" and "size"	Government of France	Ministère de la Transition écologique et solidaire	France
52297	12	19	12	24	This paragraph is the part of section 8.1.4 called 'The urban century' and the theme of this section is about massive increase in global population, which leads high rate of urbanization. But the paragraph in page 8-12 is not aligned with the theme of this section, and instead talks about the shrinkage of urban population.	Rejected; massive urbanization is cumulative globally and the shrinking trend affecys this less but important for mitigation options since shrinking cities will remain so for year sto come	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
21693	12	20	12	21	About "The majority of cities that have experienced 21 population declines are concentrated in Europe.": do we have any idea of their size?	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
6971	12	21	12	22	Strange that the decline in fertility rate is not mentioned as a factor.	Edited	Debra Roberts	EThekwini Municipality	South Africa
21695	12	22	12	24	"Shrinking urban populations could offer retrofitting opportunities (UNEP 2019a), but the challenges for these cities differ in scope and magnitude from rapidly expanding cities." and the causes of population decline. The decline may lead to an increase in certain categories of emissions due to habitat and network degradation. In addition, the loss of tax revenues can have very negative effects on urban mitigation policies. Finally, there may be a reduction in emissions, but a parallel increase in vulnerability, linked to growing inequalities.	Reject. Sentence covers it all	Government of France	Ministère de la Transition écologique et solidaire	France
66913	12	25	12	35	Add that informality/ informal settlements are also characterised by a lack of access to urban services, such as waste collection, wastewater treatment, water, energy, public transport, etc...	Noted; the inadequacy is the starting point for mitigation opportunities in informal settlements	Lea Ranalder	REN21	France
1677	13	1			change from ..Unlike nation... to ...Unlike national....	Edited	Sunday Abuje	University	Kenya
21697	13	1	13	2	The statement about no internationally agreed upon definition of urban is very important and should be placed at the start of section 8.1.4 on Page 9 as it affects the trends in urbanisation discussed in the section.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4071	13	1	13	6	Some definitions of urban (example india) also relates to the % of working male population in a given area. Please include this to showcase how this definition varies. Reference to this argument here: https://unstats.un.org/unsd/demographic/sconcerns/densurb/Defintion_of%20Urban.pdf	Noted	Zaheer Allam	Deakin University	Mauritius
4945	13	7	13	8	The authors wrote "concentrated human habituation centres that exist along a continuum" (Dodman et al. 2021). I am not sure whether the authors mean "habituation" or "habitations" furthermore, the rederence is no shown in the references list	Edited	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
4501	13	9	13	43	Add Reference :Bharat A (2006) ,Downscaling Climate Change Mitigation Tools in Local Government- From UNFCCC Goals to India , IDGEC Synthesis Conference Bali, Indonesia , http://www2.bren.ucsb.edu	Reject. This section includes new literature since AR5	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4503	13	9	13	43	Add reference : Bharat A, Chandan C (1997/ 2001), Urban governance for sustainable Development CAP Newsletter Vol. 9, June 03 page 13, www.commonwealth-planners.org_Governance_For_Sustainable_Development.pdf (ResearchGate)	Reject. This section includes new literature since AR5	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4505	13	9	13	43	Add reference : Pandey R.U, Bharat A , Garg Y (2014), Quantitative Approach for Understanding Perspectives on Livability in Indian Context, International Journal on Emerging Technologies, Vol. 5, Issue-1, Page no. 1-7, Jan. 2014, ISSN no. (print) : 0975 – 8364 ISSN no. (online) : 2249 – 3255	Reject. This reference is not directly relevant here	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4507	13	9	13	43	Add refernce : Bharat A, Sharma D (2007), Urban Poor and Access to Water- Role of Stakeholders and Beneficiaries, Book entitled, Urban Planning and Environment : Strategies and Challenges" Ed. Laxmi Vyas, Macmilan India	Reject. This section includes new literature since AR5	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4509	13	9	13	43	Add reference: Nair Rekha .S ,Bharat A, Manu G. Nair (2013), Assessment of socio – economic vulnerability of urban coastal areas by an indicator based approach for developing country, International Journal of Environmental Research and Development, Vol. 3, No. 1, 2013, pp 1 – 11, ISSN 2249 – 3131	Reject. This section includes new literature since AR5. And focuses on mitigation	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4511	13	9	13	43	Add reference : Hans A , Bharat A (2015), Developing a framework for analyzing end use water demand, International Journal of Engineering Research and Technology, Vol.4, issue 09 , Sep. 2015 , pg. 42 – 46, ISSN:2278-0181	Reject. This reference is not directly relevant here	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4513	13	9	13	43	Add reference: Ahmad S, Bharat A (2012), Wind field modifications in Habitable Urban areas, Current World environment, Vol. 7, pp 267 – 273, Dec. 2012, ISSN: 0973-4929, Online ISSN: 2320-8031,http://www.cwejournal.org/pdf/vol7no2/CWEV07102P267-273.pdf	Reject. This section includes new literature since AR5	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4515	13	9	13	43	Add reference: Jaiswal A, Bharat A (2013), Assessing regulatory framework for solid waste management in India, International Journal of Regulation and Governance, volume 13 (2) , Nov. –Dec. 2013, ISSN : 0972-4907 (print version)	Reject. This section includes new literature since AR5. And with a strong focus on climate change mitigation	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4517	13	9	13	43	Add refernce: Jaiswal A, Bharat A 92016), Exploring Criteria To Locate Solid Waste Transfer Station In Urban Areas, International Journal on Solid Waste Technology and Management - Widener University School of Engineering, volume 42, Issue 1 , Feb. 2016, Pg. 58 – 65, ISSN: 1088-1697(print version)	Reject. This reference is not directly relevant here	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
55113	13	9	13	43	The text may also explore the idea that urbanization in developing countries has the opportunity to follow a different path of growth from the urbanization of the developed world in the last century, based now on low carbon technologies.	Accepted. There is now a new subsection 8.6.3 on Mitigation opportunities for future urban settlements	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil
6137	13	10	13	14	Following article supports the sentence of urbanisation in developing countries. - Kii, M. Projecting future populations of urban agglomerations around the world and through the 21st century. npj Urban Sustain 1, 10 (2021). https://doi.org/10.1038/s42949-020-00007-5	Accepted	Masanobu Kii	Kagawa university	Japan
11913	13	12	13	12	Just to build on the said narrative the budget allocation for this financial year (2021) for climate change is only 40 corers ($ 0.040 bn) although budgets for solar energy etc are in place but such an intent surely could be game changer.	Noted, thank you. Please see 8.5.3	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
4947	13	12	13	13	As in the comment at line 18	Noted. Comment is unclear.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
10703	13	25	13	26	What Gouldson et al say is that transformative actions can be realized PROVIDED THAT they are initiated in a way which avoids strong risks of carbon lock-ins. At least this is what I understand.	Partially accepted. Agree however this sentence is deleted as there is duplication with section 8.2.2.	Philippe Waldteufel	CNRS	France
4243	13	30	13	30	influnced [by] factors	Accepted and revised	Lee White	Australian National University	Australia
21699	13	30	13	31	This sentence is unclear and might be reformulated.	Accepted and revised	Government of France	Ministère de la Transition écologique et solidaire	France
18391	13	30	13	36	Perhaps include that this has an international dimension i.e. these private interests are tied up with international flows of capital	Accepted and revised	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21701	13	34	13	34	"Low carbon transitions are rooted in socio-economic context" and history (cf. post-colonial studies)	Noted. Socio-economic context is shaped by history therefore this is implied	Government of France	Ministère de la Transition écologique et solidaire	France
4245	13	34	13	36	awkwardly passive sentence	Accepted. Revised	Lee White	Australian National University	Australia
11915	13	35	13	36	The global lifestyles governs the social connotation of mega cities which has lead to gentrification and the high end residential condominiums occupy prime location with low densities but high on energy use often with ample green cover while these isolated pockets may be sustainable in their own right but when tabulated for rest of the city where densities are relatively high but with such premium developments' coupled with cities expanding on the peripheries thus t calculations depict densities decline. These urban agglomerates virtually end up as TOD connected by need rather than by design. Therefore impacts the climate change from energy use to GHG emissions and embodied energy with expansions such.	Noted.	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
4073	13	41	13	41	Please consider this change: 'Several of these cities in low income economies, specificically in the global south, are underserved with infrastructure and lack adequate housing.'	Accepted. Revised	Zaheer Allam	Deakin University	Mauritius
60623	13	41	13	41	The paragraph is out of context. What are 'these cities' that it refers to?	Accepted. Revised	Evyatar Erell	Ben-Gurion University of the Negev	Israel
21703	13	42	13	42	"prioritising energy access and infrastructure" we suggest to add safe drinking water, sanitation	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
21955	13	44	13	44	paragraph 8.1.6, the authors indicate that there are few effective methods to assess carbon footprint or urban emissions accounting. However, a great many local authorities have developed methodologies, mainly based on urban metabolism, which are direct management tools.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
84469	13	44	14	44	You should provide an analysis of how emissions change as countries achieve different urbanization rates. Developed countries may have rural areas with more per capita emissions of CO2 than urban areas, different from developing countries. See for example Sethi, M., & Oliveira, J. A. P. (2015). From global 'North–South'to local 'Urban–Rural': A shifting paradigm in climate governance?. Urban Climate, 14, 529-543.	Accepted. We inserted this sentence:"For example, in developed countries rural GHG emissions per capita often exceed urban, while in developing countires it is the other way around." and the reference suggested.	Jose Antonio Puppim de Oliveira	FGV	Brazil
4949	13	45	13	46	I would not stress the theme of the size as previously has been highlighted the importance of small and mdium - sized conurbations	Accepted. This section was sunstantially modified, which also addressed the city size.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
21705	14	1	14	2	Regarding the sentence "Urban areas depends[...]waste"p14, one could even add that metabolic relations between cities and the hinterland are most often based on relations of domination and power, but sometimes on relations of cooperation and proximity (Cf. Jean-Baptiste Bahers, Audrey Tanguy, Stéphanie Pincetl. Metabolic relationships between cities and hinterland: a political-industrial ecology of energy metabolism of Saint-Nazaire metropolitan and port area (France). Ecological Economics, Elsevier, 2020, 167, pp.106447. (10.1016/j.ecolecon.2019.106447).)	Accepted. The suggested statement + reference are added to this section	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21707	14	2	14	2	We suggest to add: " (...) to discharge waste. Research on urban metabolisms is expanding, leading to a better understanding on how material and energy flows shape and are shaped by urban systems and how cities relate to their hinterland and large-scale ecosystems (Newel & Cousins, 2015, Inostroza & Zepp, 2020). Urban areas are a net source (...)" Newell, J. P., Cousins, J. P., 2015, The boundaries of urban metabolism, Progress in Human Geography, 39, 6, pp. 702-728 DOI 10.1111/j.1530-9290.2012.00556.x Inostroza, L., Zepp, H. 2020, The metabolic urban network: Urbanisation as hierarchically ordered space of flows, Cities, DOI 10.1016/j.cities.2020.103029	Noted.The original sentence was removed	Government of France	Ministère de la Transition écologique et solidaire	France
10705	14	6	14	12	The link between the city and its hinterland seems very relevant indeed in a mitigation perspective. Does not that mean that from this perspective there are preferred characteristics in terms of city size, density, area? It seems very likely at least that megacities are not the best solution; therefore one should not recommend creating additional megacities.	Accepted. We mention city size and density as dominant determinants of GHG emissions, but caution that drivers of urban GHG emissions are not so easy to explain once the urban footprint is taken into account.	Philippe Waldteufel	CNRS	France
21709	14	10	14	12	Regarding the sentence "urban carbon pools [...] urban carbon accounting"p14 (L.11-12), this notion is very important, which is why cities cannot simply act on Scope 1, that of direct emissions on their territory, which concerns only a small part of their carbon responsibility. There is an urgent need to develop city-regional policies for material and energy consumption.	Accepted. The suggested statement is added to the section.	Government of France	Ministère de la Transition écologique et solidaire	France
14263	14	13	14	14	Many city governments have recently been adopting bans or restrictions on the use of fossil fuels for heating in buildings (mostly in California), and similar city-level restrictions/bans also exist for the use of fossil fuels (mostly diesel) and/or internal combustion engine vehicles, including but not limited to low-emission vehicle zones. REN21 started tracking this, data will be available here on 18 Marchwww.ren21.net/cities/datapack	Accepted. I think this information is more relevant for the mitigation section	Flávia Guerra	REN21	Germany
14983	14	14	14	15	In order to indicate clear figure, the following red text with the reference literature should be amended in the draft text; Infrastructures containing cement also uptake "15% to 27% of CO2 emitted under the cement production from the atomsphere through the process of recarbonation (Schneider 2019)*." *: The cement industry on the way to a low-carbon future. Cem. Concr. Res., 124, https://doi.org/10.1016/j.cemconres.2019.105792.	Noted. Sentence about carbonation of cement has been removed	NAOKI AOKI	Japan Cement Association	Japan
18393	14	14	14	15	It is not very clear why the carbonation process is mentioned here. Is the evidence compelling enough for it to be recognised as a key mitigation measure?	Noted. Sentence about carbonation of cement has been removed	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
60625	14	14	14	15	Cement manufacture takes carbon that is already locked in rock, and is thus not contributing to GCC, and requires vast amounts of energy. The net effect is a very large emission of carbon dioxide. This statement inverts accepted CO2 accounting.	Noted. Sentence about carbonation of cement has been removed	Evyatar Erell	Ben-Gurion University of the Negev	Israel
4239	14	14	14	21	Statement on line 20-21 (only significant pathway) makes it seem unnecessary to include lines 14-17 (about the cement uptake process); or at least different bridging would help with sense of consistency in reading	Noted. Sentence has been removed	Lee White	Australian National University	Australia
3493	14	15	14	15	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	Noted. Sentence has been removed	Miguel Angel Sanjuán	IECA	Spain
10383	14	15	14	15	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	Noted. Sentence has been removed	Aniceto Zaragoza	Oficemen	Spain
11539	14	15	14	15	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	Noted. Sentence has been removed	PEDRO MORA PERIS	UNIVERSITY	Spain
1679	14	18			change from ...photosynthesis of green plants... to ...photosynthesis by green plants...	Accepted. Sentence has been edited	Sunday Abuje	University	Kenya
18395	14	25	14	27	The reference to biomass - based materials is very specific but not necessarly feasible at scale and across all geographies. It also requires a very high level of knowledge and givernance of forest and vegetation management.	Noted. Sentence about biomass-based materials was removed	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
62107	14	25	14	27	Biomass-based materials are low carbon but their low thermal mass reduces the possibility to store energy : the use of solar gains and passive cooling is thus limited. A higher thermal mass also improves the resilience of buildings to heat waves. Depending on climatic conditions, it may therefore be needed to complement e.g. wood with thermal mass, preferably using earth or low carbon concrete. This can be studied using life cycle assessment and thermal simulation (Roux et al., 2016), (Peuportier et al., 2013). Roux C., Schalbart P., Assoumou E. and Peuportier B., Integrating climate change and energy mix scenarios in LCA of buildings and districts, Applied Energy 184 (2016), pp. 619-629 Peuportier, B., Thiers, S. and Guiavarch, A., Eco-design of buildings using thermal simulation and life cycle assessment, Journal of cleaner production, Volume 39, Pages 73-78, January 2013	Noted. Sentence about biomass-based materials was removed	Bruno Peuportier	MINES ParisTech	France
65067	14	27	14	29	The urgency of climate change mitigation warrants that such non-renewable, harmful forms of energy not be endorsed by a reputable body such as the IPCC. Please clarify by citing Barlaz 2006.	Noted. Sentence about carbon accumulation was removed	Karishma Asarpota	ICLEI World Secretariat	Germany
3495	14	29	14	29	Please, add the following sentence after line 29: " 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Noted. This paragraph was removed	Miguel Angel Sanjuán	IECA	Spain
10385	14	29	14	29	Please, add the following sentence after line 29: " 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Noted. This paragraph was removed	Aniceto Zaragoza	Oficemen	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
11541	14	29	14	29	Please, add the following sentence after line 29: " 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Noted. This paragraph was removed	PEDRO MORA PERIS	UNIVERSITY	Spain
21711	14	29	14	29	We suggest to add: "(...). Notwithstanding that landfilling, considered as a less preferred waste treatment option, is generally discouraged by waste policies.	Noted. This paragraph was removed	Government of France	Ministère de la Transition écologique et solidaire	France
74987	14		14	25	Correct above mentioned to two words	Noted. This paragraph was removed	Government of Kenya	Kenya Meteorological Service	Kenya
71945	15	1	15	2	add wetlands?	Noted. 'Blue infrastructure' such as wetlands can be found in the new NBS/Green and Blue Infrastructure Figure in the FGD.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21713	15	2	15	2	The figure 8.4 could be improved because the link with the regional and global scales is not visible. Yet this is a very important point of the issues of the indirect carbon footprints.	Noted. Revised figure will show a larger urban system - but would direct attention to figure on "urban systems" in SOD and FGD.	Government of France	Ministère de la Transition écologique et solidaire	France
60627	15	2	15	2	Urban heat islands are not part of the ecosystem - they are merely an artifact of differential cooling rates of urban vs rural environments.	Noted. Revised figure will show relationship btw rural and urban environment.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
56215	15	10			Figure 8.4 was also adapted from Romero-Lankao et al. (2014), not only from Hutyra et al. (2014) and Marcotullio et al. (2018).	Figure has been complete revised.	Government of United States of America	U.S. Department of State	United States of America
56217	15	12	19	23	Suggest to tighten Sections 8.1.6.1 and 8.1.6.2 on emissions accounting, measurement, and estimation. Also, they don't cover other (e.g., rural) settlements. Why don't authors focus on what is new in relation to the corresponding section in WGIII AR5 (i.e., to Section 12.2.2.2, Emissions accounting for human settlements). For instance, which of the GHG accounting approaches that have emerged over the past two decades (Table 8.1) were developed after 2014?	Rewrote to specifcally talk about two aspects of what is new since AR5. First - what is new is big picture understanding of how existing GHG accounting approaches map to net-zero transitions. Second, method innovations to advances the various approaches to GHG accounitng. Also added some clarification notes that approaches for carbon accounting are rooted in metabolism concepts, and as such apply to any community boundary -whether urban or rural, and also apply at any spatial scale. In fact, ICLEI USA's protocol is called the "Community Protocol for GHG Accounting" . The carbon acounting methods build upon each other and are based on principles of mass and energy accounting. New approaches still follow the basic material and energy flow accounts, now shown in a Figure.	Government of United States of America	U.S. Department of State	United States of America
21715	15	13	15	13	A large number of cities have opted for an urban metabolism approach, accounting for inflows, outflows and intra-urban transformations. This method has the advantage of identifying the energy-intensive or GHG-producing compartments, and of developing policies for correction, recycling and technology change. This method is not taken into account in this report even though it is a tool much appreciated by the authorities. (Chini & Stillwell, 2019; González-García & Dias, 2019).	New sentences have been added to clarify. Urban carbon footprinting is based entirely on the urban metabolism concept (which does include transboudnary supply chains). Text notes that advances within in-boundary material energy flows are commined with tranboundary assessments	Government of France	Ministère de la Transition écologique et solidaire	France
4241	15	19	15	21	repetition of the prior page (14 lines 14-21)?	Agreed. This entire paragraph repeats content of previous section	Lee White	Australian National University	Australia
71947	15	19	15	21	How about the aquatic systems?	This paragraph has been stricken and aquatic is mentioned in previous intro section	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21717	16	5	16	7	It is certain that in the scientific literature, these methods are the most studied. But this paragraph does not take into account the methods developed by public institutions such as regions or municipalities, around the calculation of carbon footprints and urban metabolism (already mentioned above). For example, the city of Brussels (Ecores, 2015) or Paris (http://metabolisme.paris.fr/) and many other cities. These approaches are much more precise than those proposed by Ramaswani.	Agreed - in fact see my comments and suggested edits (long) in the cell above to makde sure the footprints are noted as arising from urban metabolism. New text addresses this.	Government of France	Ministère de la Transition écologique et solidaire	France
6973	16	13	16	43	Please provide evidence for these statements.	agreed. there are many statements of opinion that are not supported by citations	Debra Roberts	EThekwini Municipality	South Africa
71949	16	20	16	20	Include blue infrastructure	Water supply and wastewater treatmemt are explicitly inlcuded in the infratsructure based accounitng, and so is green infrastructure. The Figure on GHG footprinting can make this clear - see also the secund row of the Table	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
65089	16	22	16	26	As the reader might have no knowledge of carbon footprinting and the definition of scope 1,2,3, the authors might consider including few lines of explanation of how the scopes work and how they are defined. Maybe adding a small example that shows how we can classify the scopes might help the reader in understanding the mechanism. Referring to LCA might also help.	Thanks - agreed. I would suggest bringing back the Figure that was made for this purpose (and seems not to be in the SOD)	Karishma Asarpota	ICLEI World Secretariat	Germany
21719	16	25	16	26	What is missing from the notion of "transboundary emissions" (p16 l25) is the outsourcing of the energy metabolism of cities. Thus, it is important to measure indirect energy consumption on multiple scales and all the resulting losses.	Agreed - and the new text provides that introduction- not only is energy metabolism outcoursed, so is food and water. Hecne the need to account for transboundary emissions.	Government of France	Ministère de la Transition écologique et solidaire	France
4247	16	32	16	34	household consumption accounting... [is] not are; and 'cities in since' is missing some words	Accepted. Deleted the word 'in"	Lee White	Australian National University	Australia
16455	16	33	16	33	check "in since"	Accepted. Deleted the word 'in"	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
18397	16	38	16	40	Reference to electricity use is confusing. Should it be energy use?	Accepted. Changed electricity in line 40 to energy.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21721	16	44	16	45	It might be interesting to mention the existence of tools such as GES urba from CEREMA, which allow to evaluate and build scenarios of spatial organisation, urban planning, transport, development of renewable energies, rehabilitation of buildings in terms of GHG emissions.	These are now mentioned in the section on detailed inboundary patterns of urban metabolism.	Government of France	Ministère de la Transition écologique et solidaire	France
46935	16				Could be useful to cite the Common reporting framework of GCoM for what concerns mitigation, with the methodology for the ghg inventory	The earlier Figure (which did not make it to SOD) cited the GPC method, which is more encompassing. That could be noted in the text.	Valentina Palermo	JRC	Italy
7927	16		16		Methods: another option is "based on the decision space of the decision makers / agents of the specific urban settlement". Boundaries are therefore not only determined by the physical / territorial / logistics conditions, BUT by the area within which the urban decision makers can play/act/operate.	The boudnary is noted to be the administrative boundary - no matter what the boundary, cross scale collaboration will be needed. This is noted in the new introductory text.	Rocco De Miglio	Energy analyst and modeller	Italy
30519	17	1	17	1	Table1 format is different from the whole chapter.	Table has been removed for FGD.	Lingna Liu	China University of Geosciences（Beijing）	China
64217	17	1	17	1	Table 8.1. is still higlighted with grey colour.	Table has been removed for FGD.	Ova Candra Dewi	Universitas Indonesia	Indonesia
71951	17	1	18	3	Include blue infrastructure	Table has been removed for FGD.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74927	17		17		Consider updated information on global south cities that have developed GPC compliant GHG inventories eg. Nairobi, Addis Ababa, Dar, Lagos, Accra, Dakar, Joburg, Durban.	Noted. Added text specifcally calls our GPC Basic Plus, and examples of cities can also be added there	Government of Kenya	Kenya Meteorological Service	Kenya
71953	19	6	19	8	No figure legend, not clear what it is No.1, No.2, No.3 or No.4 in this figure.	Figure caption has been updated to include description of numbers in figure.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21723	20	12	20	12	About '"Botto-up" approches': It appears surprising that the paragraph on bottum up approach (p20 l. 12) doesn't mention energy flow analysis methods, coming from the reflection on urban metabolism. Many works have been developed and enriched with a very interesting spatial dimension.	Additional text on energy flow analysis methods has been added to this section	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21725	20	12	20	12	About ""Botto-up" approches': Considering all the criticisms of circular economies concerning the fact that the fuzzy definition does not engage a break with the processes of economic growth (see Gregson 2015, Kirchherr et al 2017, Kovacic et al. 2019) , it is a pity that the report does not mention once the (urban) decrease in consumption (Barles 2010; Shneider et al 2010) which implies putting on the political agenda the reduction of social metabolism and the flow of materials and energy. The theory of post-growth or de-growth should be integrated as a possible urban trajectory towards sustainability. This debate cannot be dismissed so simply. Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. Resources, conservation and recycling, 127, 221-232. Kovacic, Z., Strand, R., & Völker, T. (2019). The circular economy in Europe: Critical perspectives on policies and imaginaries. Routledge. Gregson, N., Crang, M., Fuller, S., & Holmes, H. (2015). Interrogating the circular economy: the moral economy of resource recovery in the EU. Economy and society, 44(2), 218-243. Barles, S. (2010). Society, energy and materials: the contribution of urban metabolism studies to sustainable urban development issues. Journal of environmental planning and management, 53(4), 439-455. Schneider, F., Kallis, G., & Martinez-Alier, J. (2010). Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. Journal of cleaner production, 18(6), 511-518.	Section to be revised and will consider incorporation of comment.	Government of France	Ministère de la Transition écologique et solidaire	France
4519	20	25	24	16	Add refernce: Bharat A, Sharma D 92007) "Climate Change and Cities: what it means to us and how India addresses the issue ", - Spacio Economic Development Record (SDR), Vol. 14, No. 4 July - Aug.07, Page no. 5 – 13, ISSN 0971 - 4944	The reference is a self-citation while the content of the reference is taken into account.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4521	20	25	24	16	Add refernce: Nair Rekha .S ,Bharat A, Manu G. Nair (2013), Impact of climate change on water availability : Case study of a small coastal town in India, Journa of water and climate change (by IWA Publishing), Vol. 4 , No. 2 , 2013 , pp 146 – 159, ISSN: 2040-2244	The reference is a self-citation while the content of the reference is taken into account	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4523	20	25	24	16	Add refernce : Nair Rekha .S ,Bharat A, Manu G. Nair (2012), Framework for Integrating adaptation policies for climate change in development plan, International Journal of Environmental Engineering and Management, Vol. 3 , No. 3 ,2012 , pp 235-249, ISSN 2231-1319	The reference is a self-citation while the content of the reference is taken into account	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4525	20	25	24	16	Add refernce: Nair Rekha S, Bharat A (2012), Framework for integrated coastal zone planning & management in view of climate change. Spacio Economic Development Record (SDR) Vol. 19 No. 3, May – June 12, Page no. 67 – 76 RNI No. 57320/94, ISSN 0971 – 4944	The reference is a self-citation while the content of the reference is taken into account	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
65093	20	25	24	16	I would have expected (as it is a Cross-Working Group) to see more links made to the sub-chapters of WGII, Chapter 6 in terms of overlaps and synergies not just WGIII.	Accepted	Karishma Asarpota	ICLEI World Secretariat	Germany
81391	20	25	24	16	In general the content of the box appears a little bit too abstract and would need to become much more specific. For example the section ii on cascading risks and carbon lock-ins has no concrete example how and where climate change risks are cascading between cities. The Figure CWGB CCUA.1 is somehow representative for his: it just shows some links between cities and the legend says that the arrows show risks, but it is totally unclear how, when and why this happens.	Accepted	Hans Poertner	Alfred-Wegener-Institute	Germany
56219	20	25	24	17	While Cross Working Group Box 2 is compelling, Figure CWGB CCUA.1 is not. What do the rectangles and arrows convey? Can authors include some text explaining these?	Agreed. The Cross-WG box is thoroughly revised and restructured based on the comments.	Government of United States of America	U.S. Department of State	United States of America
7493	20		24		The core messages of the X-WG box i.e. the global urgency, the real opportunity for rapid decarbonisation and climate risk reduction in urban contexts, that action in the Global South is particularly urgent, the interconnected and truly global promise that cities bring to climate change, financing systemic city responses to climate - need to appear more clearly in the ES of Chapter 8 and in the SPM	Accepted. These key messages are directly utilized to thoroughly revise and restructure the box with WGII and WGIII collaboration.	Debra Roberts	EThekwini Municipality	South Africa
6975	21	7	21	7	Please specify the increase in terms of the % from a baseline.	Accepted	Debra Roberts	EThekwini Municipality	South Africa
4951	21	7	21	8	As in the comment at line 18	Taken into account.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
81393	21	14	21	19	The problem of the longevity/ durability of built infrastructure could be made more explicit here as the key problem that infrastructure built today will determine our energy usage for the next 50 years. It must become clear that the time to act/ decide is now because we enter pathways which determine futu energy consumption.	Accepted. The longevity of urban form and infrastructure is emphasized.	Hans Poertner	Alfred-Wegener-Institute	Germany
9933	21	20		29	This is a very good explanation paragraph showcasing the nexus between climate change and disaster, however, more information on other types of disaster can still be added, i.e. deep well to overcome water shortages may result in land subsidence as evidenced in major cities of Indonesia, which exacerbate flooding, extreme rainfall tend to cause landslide .	Accepted. Thoroughly revised and restructured based on the comments.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
6977	21	30	21	30	This message seems to take away the sense of urgency for climate action in the global North. The starting point should be that globally, climate change action urgent in all urban centres. The uniqueness of the global south which emphasises the urgency of action that you have articulated can then follow.	Accepted. The sense of urgency is made clear for all urban centres.	Debra Roberts	EThekwini Municipality	South Africa
4745	21	30	21	39	This paragraph mentions the urgency to act on climate in the global south, but it would help make the case if stressing on the costs of high carbon locked in/ stranded assets were also made here. If these cities were to develop in a BAU manner, shifting away from this growth and assets will be extremely costly in the future.	Accepted. The time dimension is used to support the need for urgent action.	Sagar Sagar	GGGI	Canada
18399	21	35	21	39	Shouldn't the paragraph mention the need to avoid, minimise/mitigate any potential unintended consequences rather than just aknowledging them? Particularly regarding adverse effects on vulnerable populations?	Accepted. Thoroughly revised and restructured based on the comments.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
4527	21	40	27	2	Add reference : Sharma D, Bharat A (2009), Conceptualising Risk assessment framework for impacts of Climate change on water resources, current science Vo 96, no. 8, 25 April 2009, pg. 1044 – 1052, ISSN 0011-3891	The reference is a self-citation while the content of the reference is taken into account.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4529	21	40	27	2	Add refernce: Nair Rekha S, Bharat A (2011) , Methodological frameworks for Assessing vulnerability to climate change; Journal of the Institute of Town planners India, Vol. 8 no. 1, Jan. – Mar., Page no. 1 – 15, ISSN 0537 – 9679	The reference is a self-citation while the content of the reference is taken into account	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4531	21	40	27	2	Add refernce: Bharat A, Chandan C (1997/ 2001), Urban governance for sustainable Development CAP Newsletter Vol. 9, June 03 page 13, www.commonwealth-planners.org_Governance_For_Sustainable_Development.pdf (ResearchGate)	The reference is a self-citation while the content of the reference is taken into account.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
71955	21	41	21	41	The ocean - singular form is better suited.	No longer used in the text.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71957	21	41	21	41	the ocean and seas	No longer used in the text.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
66915	22	2	22	4	The figure is difficult to understand and does not help clarifying the concept. Suggest to either remove or elaborate in a caption/ add legend for colour scheme	Accepted.	Lea Ranalder	REN21	France
21727	22	4	22	4	Figure CWGB CCUA.1:. Talking about systemic risk?	The box is thoroughly revised and restructured.	Government of France	Ministère de la Transition écologique et solidaire	France
21729	22	4	22	4	There is no legend on this diagram	The box is thoroughly revised and restructured.	Government of France	Ministère de la Transition écologique et solidaire	France
65095	22	4	22	4	Figure CWGB CCUA.1 is an unclear graphic with no explanation of the symbology - the arrows could be differentiated more effectively to show different types of risk and clearer symbols to represent cities and the flows between them.	Accepted.	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18401	22	6	22	7	A good point is made in this line about cities needing to mitigate risk beyong their administrative boundaries and the interconnection with supply chains and other cities. It would be worth flagging this point in the executive summary section.	Accepted. Both the box and the urban systems figure indicate interconnections.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
65097	22	7	22	7	No definition is provided for 'deep decarbonisation', this would be helpful for the reader since the term also appears elsewhere.	Accepted. Deep decarbonisation is defined and related to urban mitigation strategies.	Karishma Asarpota	ICLEI World Secretariat	Germany
81397	22	23	22	27	I think some of the most connected cities of the world have very high portions of poor inhabitants and informal settlements like Mumbai, Sao Paulo, Jakarta etc. So would challenge this statement	Accepted.	Hans Poertner	Alfred-Wegener-Institute	Germany
52299	22		22		Figure number is not consistent with the previous one.	Taken into account.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
27773	22		22		Figure A.1 is not clear.	The box is thoroughly revised and restructured.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
74929	22		23		Consider including Green and Just Recovery elements as part of COVID-19 response as well as the Global Green New Deal elemebnts that complements this	The box is thoroughly revised and restructured.	Government of Kenya	Kenya Meteorological Service	Kenya
81395	23	1	23	8	It's not clear what is meant by "the depth of inequality and vulnerability that has been allowed to accumulate in urban settlements through locked-in policy processes and market institutions" - especially which market institutions and what is meant by locked-in policy processes in this regard? It is also unclear which global opportunities exist to build resilience based on the interconnectedness of cities. It would be desireable to make this much more concrete to make readers understand what is meant here.	Accepted.	Hans Poertner	Alfred-Wegener-Institute	Germany
18403	23	12	23	12	Please consider replacing "federal" with national or central administration.	Accepted and replaced whenever relevant.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
143	23	21	23	33	a key challenge is the lack of policy integration between many mitigation and adaptation policies; there is a stronger need to integrated between the different sectors and strategies	Accepted with thanks. The synthesis figure also provides additional emphasis.	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
18405	23	26	23	27	The point about digitalisation is not very clear. Is it a point about access to data to inform strategies or is it about access to broadband and digital infrastructure?	Accepted. Data-driven urban planning is clarified.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
65081	23	31	23	33	The authors might add that the Covenant of Mayors, C40 and ICLEI provide also with accountability, as the participating cities are required to present action-plans and results.	Taken into account for other sections.	Karishma Asarpota	ICLEI World Secretariat	Germany
18407	23	34	23	38	The distinction between funding and financing needs to be clear. Financing is the initial upfront capital expenditure, funding is about how you pay for someth over its lifetime. Both are equally important.	Accepted and addressed.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
4249	23	34	23	45	no citations are provided for the points made here	Accepted and addressed.	Lee White	Australian National University	Australia
6979	23	34	23	45	Please provide evidence for the issues raised in this paragraph.	Accepted. Thoroughly revised and restructured based on the comments.	Debra Roberts	EThekwini Municipality	South Africa
4075	23	40	23	43	Ref inclusion to support argument: https://www.mdpi.com/2227-7099/7/2/62	The suggested reference is a self-citation and concerns public private partnerships to support policies to conserv cultural heritage in SIDS. The reference is taken into account while it is not directly relevant to support the statement.	Zaheer Allam	Deakin University	Mauritius
18409	23	41	23	43	In relations to the focus on debt financing in this secion, should there be a greater focus on the need for suitable, high quality strategies and spatial plans that lower risk for institutional and private investors?	Yes. The importance of spatial plans is underscored.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
71959	23	41	23	43	The same comment as for page 5: Many examples show that cities do not play a pivot role in funding and debt financing. The issues can be fixed at National Government level providing guarantees/subsidies.	Accepted. The role of cities is clarified.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
7497	23	42			Is it possible to quantify the funding gap in urban areas?	Annual investment needs (estimates) are added -US$4.5 trillion to US$5.4 trillion investment needs annually	Debra Roberts	EThekwini Municipality	South Africa
79217	24	9	24	10	The following "Urban systems pathways for transformation and assessment of mitigation and adaptation action 10 (Estrada et al. 2021, in press; Tozer et al. 2021, in press)" is highlighted as a key gap in 3 places throughout the document, and in the main text follows discussion on nature-based solutions. Is this what this comment refers to? Since it's noted as an important gap some additional context would be helpful.	Response is to be determined.	Martino Tran	UBC	Canada
21731	24	13	24	14	It would be necessary to add: "Conditions necessary for the application of policies and action plans decided at global as well as local level."	Accepted and addressed.	Government of France	Ministère de la Transition écologique et solidaire	France
21733	24	18	24	18	Section 8.2 Co-benefits of urban mitigation is surely closely linked to Section 8.4 Urban mitigation options. It is unclear therefore why this Section 8.2 comes before Section 8.3 Urban systems and GHG emissions which also actually analyses trends that follow on directly from Section 8.1. A reordering of these sections might make for a more coherent presentation of issues and then options.	Rejected; rationale is that co-benefits may be the entry point for many cities to address climate change, not through mitigation.	Government of France	Ministère de la Transition écologique et solidaire	France
52317	24	18	24	18	The 'section 8.2 Co-benefits of urban mitigation' should go after 'section 8.4 Urban mitigation options'	Rejected; rationale is that co-benefits may be the entry point for many cities to address climate change, not through mitigation.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
56221	24	18	25		Where in the chapter are the tradeoffs of mitigation actions analyzed?	Trade offs have been discussed across Section 8.2 and particularly in 8.2.3	Government of United States of America	U.S. Department of State	United States of America
70079	24	18	25	4	It may help to emphasize various co-benefits of urban mitigation by adding another figure like, for example: Figure 5. Related aims and co-benefits of sector policies to reduce GHGs at urban scale (Source: OECD 2009, p. 53). Available:http://www.oecd.org/environment/cc/44242293.pdf	We have checked the suggested Figure. Figures 8.6 and 8.7 already illustrate the co-benefits and given space limitations, adding another figure would not be desirable	Sang-Min Han	Hallym University	Republic of Korea
65099	24	18	28	22	Section 8.2 could be structured more effectively and avoid repetition between sub-sections by dividing each sub-section according to type of co-benefit e.g. health, equity, economic development. At the moment it is confusing to read as 8.2.1 Sustainable Development largely focuses on health and 8.2.2 repeats some of the points made previously	Accept. Merge under SD	Karishma Asarpota	ICLEI World Secretariat	Germany
52325	24	18	80	29	The chapter's main purpose seems to be the understanding of direct policies for urbanization and its implications for energy use and GHG emissions. However, the purpose and contribution of measures given exclusively towards urbanization are not well stated. It is important to mention the features to be considered solely for urbanization and other settlements. In line with this, make clear the difference between the direct strategies applied to urbanization and other settlements from co-benefits and synergies.	This comment is referring to the whole chapter and asks for more direct attention to urban-specific actions. This has been taken into account in the revised version	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
79219	24	19	25	11	Section 8.2 Co-benefits is an making an important point and highlighted in the introduction as a new framing of mitigation. This section would be strengthened with more quantitative data with synthesis of both empirical and modelling studies from the literature. Some evidence is given under section 8.2.1 under "Sustainable Development" but most of the data refers to human health and transport. A summary table that categorizes and synthesizes quantitative evidence throughout 8.2 would strengthen this important chapter.	We have tried to provide quantitative data as much as possible. Figure 8.6 has been prepared based on this. As the Figure shows, for some issues qunatitative data is limited	Martino Tran	UBC	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21735	24	29	24	31	This sentence is unclear and confusing, since not only in developing countries, but in all countries, policies and actions against climate change are part of larger plans, and in particular the SDGs. Today there is no policy without repercussions on development, the economic or social.	Accept	Government of France	Ministère de la Transition écologique et solidaire	France
49599	24	29	24	31	Developing countries-is written at the start and end of the sentence.One of it can be deleted.	Accept	Satyaprakas Das Das	Manipal Academy of Higher Education	India
52319	24	39	24	42	The chapter refers to the importance of the urban and other settlements in energy and its implications to GHG emissions. However, the report does not pay sufficient attention to the concept of cities' resilience facing environmental, socioeconomic, and political challenges. This needs to be addressed.	Reject. Adaptation related	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
21737	24	42	24	42	Throughout the report there is an ambiguity maintained between the increase in density and compactness. These are two different types of actions: increasing density can have negative environmental and social effects, while urban planners prefer the notion of compactness, as shown in figure 8.6. (Xu et al., 2019; Angel et al., in press; etc.)	Reject. Noted, but this ambiguity does exist	Government of France	Ministère de la Transition écologique et solidaire	France
16457	24	43	24	43	What is "NBS"?	Accepted. We missed spelling out "nature-based solutions" in the first mention earlier in the chapter. We added that, as well as a reference to the chapter's section dedicated to NBS.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
7921	24		24		In the report, it is often (not just at page 24) used the expression "downscaling" models at city-level. It is not fully clear to me what authors mean here, if it is just a way to recommend/"shift" the focus of the analysis from supra-city systems to city-level systems, I would be totally fine with that. If instead, it is meant to suggest to downscale the same models/simulations/approaches/paradigms used for global/national scalses to the city-level, I have to say that this is very risky (wrong and useless).	Noted. In most cases it's referring to downscaling national or global models to finer scale models.	Rocco De Miglio	Energy analyst and modeller	Italy
16433	24		29		It would be logically and contextually more appropriate to move sub-chapter 8.2, Co-benefits of urban mitigation, after sub-chapter 8.4. General discussions o mitigation in the urban context shall be provided first before describing co-benefits of mitigation. Thus, it is recommended to move 8.2 after 8.4 so that discussions on cities and GHG (ch.8.3) and mitigation options, which are the essential components of this chapter, are provided before discussing co-benefits of mitigation.	Chapter structure	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
31745	25	0			Shared mobility: Air quality: chapter 5 table 5.6 says high positive impact but chapter 8 table 8.6 says low/medium impact (please check) Evs: Health: : chapter 5 table 5.6 says low positive impact but chapter 8 table 8.6 says high impact (please check)	Thank you for your comment. We checked literature and this is now revised and consistent with Ch 5	Shreya Some	Ahmedabad University	India
79269	25	1	26	11	This seems to signficantly understate some co-benefits of resource-efficient transport modes and compact development. Improving active (walking and bicycling) and public transport modes tends to provide large financial savings and increases economic opportunity for physically, economically and socially disadvantaged people. I suggest making these cells dark blue. See: * CTOD and CNT (2006), The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice, Center for Transit-Oriented Development and the Center for Neighborhood Technology, Brookings Institute (www.brookings.edu); at www.jtc.sala.ubc.ca/bulletins/affordabilityindex.pdf * Catarina Heeckt and Oscar Huerta Melchor (2021), Compact, Connected, Clean and Inclusive Cities in Mexico: An Agenda for National Housing and Transport Policy Reform, Coalition for Urban Transitions (https://urbantransitions.global); at https://bit.ly/3ec9I09. * Reid Ewing, et al. (2016), "Does Urban Sprawl Hold Down Upward Mobility?," Landscape and Urban Planning, Vol. 148, April, pp. 80-88; at https://bit.ly/3ctCGoh.	Accepted. Based on the revised SDG assessment, there is high confidence on the impact of urban and land use planning with integrated public transport on increasing employment. The figure is revised	TODD LITMAN	Victoria Transport Policy Institute	Canada
10707	25	2	25	2	"limited literature on equity": the aim of this remark made at this particular location is unclear. Impacts of mitigation in settlements on equity might be pointed as a knowledge gap; on the other hand, such a lack does not hinder section 8.2.2 to mention several examples of such impacts.	Accepted.	Philippe Waldteufel	CNRS	France
49601	25	2	25	4	The basis of this conclusion/statement made needs to be justified with Reference.	Accepted. The revised draft does not include this statement.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
6981	25	3	25	3	Agreement should be used together with evidence not confidence.	Accept. Thank you for pointing this out. This is now corrected	Debra Roberts	EThekwini Municipality	South Africa
71965	25	5	25	11	Too many grammar errors in the table	Accept. Revised in resposnse to comment	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
4953	25	5	25	5	In figure 8.6 "Equity" (one of the headings of the figure) is mispelled as well as "green facade" row 8, column 2. Furthermore, it would be interesting to see the references used for the evaluations showcased in figure 8.6. I would suggest to add the references for each "level of confidence" expressed within the cells in figure 8.6	Accepted. The assessment was revised and so was the figure. The line of sight to this will be included in the supplementary material for chapter 17. A line of sight has also been added to the section	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
7929	25	5	25	6	When evaluating (green) jobs at such a small scale (city), it would be important to say that "occupation" is often a a "zero sum" KPI (with some winners/losers at sectoral level and/or at geographical level). What is gained in "A", sometimes/often is lost in "B". That is one of the risk of stand-alone city-specific plans, everyone see and account the (expected) positive impacts for the specific case study, like there is an infinite space for improvements for ALL (which unfortunately is often not true).	Partially accepted. Agree that some of these assessments are highly dependent on context and scale. This qualifier is now added in the revised draft.	Rocco De Miglio	Energy analyst and modeller	Italy
18411	25	5	25	6	Should there be a reference on the type of CHP solutions (e.g. excluding fosssil fuels?)	Accepted. THis is addressed in the revised Fig 8.2.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18413	25	5	25	6	Isn't electrification of private transport increasing energy demand/or in any case keep it the same? Can it be considered to be as key to mitigation as public transport? In addition vehicle tires create environmental pollution in urban centres and should not be ignored.	Noted. THe AR6 WGIII assessment identifies electrification, when powered by low carbon electricity as a key mitigation strategy - this is reflected both in ch 8 and ch 10 (transport). The point about vehicle tyres would not be different for EVs vs conventional IC engines	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18415	25	5	25	6	Is there scope to include/mention non motorised or electric paratransit particularly in South East Asia?	Noted. Valid point. The table synthesizes assessmnet from global studies and doesn't include regional information, however electric scooters, threewheelers (para-transit) are covered in Chapter 10	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
66917	25	5	25	6	Be careful of attributing electrficiation of urban transport with a too high mitigation potention. Electrification of urban transport only has a high mitigation potential if EV are also powered by renewable electricity. If high electrification happens in a country that heavily relies on coal, the mitigation effects are much lower. The same goes for the health impacts. On the other hand, decarbonisation of the energy system can have a higher health impact if it means changing heat systems, getting rid of coal plants around cities, etc.	Reject. It has potential. Also, energy supply transition refers to another chapter.	Lea Ranalder	REN21	France
71961	25	5	25	6	Replace 'reen façade' with 'green façade'.	Accept	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71963	25	5	25	6	Blue infrastructure is missing, blue parks, coastal aquatic spaces.	Accepted. Revised in response to comment	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
65079	25	6	25	11	The source of the information used for the Figure 8.6 should be cited more clearly. Is it purely from the 50 climate change articles by Sharifi, as stated in the previous page? If so, the works of other authors must also be incorporated to provide a more rounded review.	RU?%Fhhjuyji3%Ymj%fxxjxxrjsy%|fx%wj{nxji%fsi%xt%|fx%ymj%knlzwj3%Ymj%qnsj nshqziji%ns%ymj%xzuuqjrjsyfw~%rfyjwnfq%ktw%hmfuyjw%6<3%F%qnsj%tk%xnlmy%mfx%fsi%fsi%ymj%s%fiij%yt%ymj% xjhynts	Karishma Asarpota	ICLEI World Secretariat	Germany
65075	25	6	25	6	The right-most column heading in Fig. 8.6 should be changed to "Equity".	Accepted.	Karishma Asarpota	ICLEI World Secretariat	Germany
65077	25	6	25	6	Energy conservation should be included as a mitigation intervention in Fig. 8.6, at least coupled with energy efficiency. Additionally, interventions focusing on water conservation and efficient use should be included as well. You may check the following reference: Tiefenbeck, V., Wörner, A., Schöb, S. et al. Real-time feedback promotes energy conservation in the absence of volunteer selection bias and monetary incentives. Nat Energy 4, 35–41 (2019). https://doi.org/10.1038/s41560-018-0282-1	Noted. The current assessment in the chapter does not include energy conservation directly as a mitigation option. HOwever, reduced energy consumption through compact city strategies, land use transport integration and public transport,etc are all included in the assessment	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21739	25	7	25	7	The H, M, L assessments of this diagram are very subjective. Compactness, for example, is one of the factors of equity because it allows a social mix in groups on a human scale. Compactness is not an appropriate level of density, it depends on the morphology adopted in the neighborhood or city.	Noted. Thank you for this comment. The H,M,L assessments of this diagram are based on the available evidence in literature. These are assigned by authors in line with IPCCs guidance on uncertainty	Government of France	Ministère de la Transition écologique et solidaire	France
52301	25	13	25	13	Section 8.2.1 is more about health than sustainable development. This section to be divided into two sections: The first should be about sustainable development (containing: 1st, 5th and 6th paragraphs), and the second should be about public health (2nd, 3rd and 4th paragraphs).	Noted; there is a point here. 8.2.1. is SD and 8.2.2. is Economic development, competitiveness, and equity. I would merge both under the SD umbrella	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
65235	25	13	25	13	The chapter's name is sustainable development. However, there is no correlation from the previous chapters on urban mitigation. Sustainable development is a very broad topic and it doesn't exactly fit here. It would be nice for the authors to consider this change.	Noted	Karishma Asarpota	ICLEI World Secretariat	Germany
66919	25	14	25	21	Suggest to strenghten the point on interlinkages of SDG 11 and other SDGs, e.g. the role of city governments in achieving SDG7	Reject. Despite the importance of Energy, it is considered under the "other SDGs" category	Lea Ranalder	REN21	France
6139	25	14	26	2	Following article examines the impacts of some measures of land use and transport on SDGs indices. - Llorca,C. Silva,C. Kuehnel,N. et al., Integration of land use and transport to reach Sustainable Development Goals: Will radical scenarios actually get us there?, Sustainability, 12(23), 9795, 2020. https://doi.org/10.3390/su12239795	Reject. Self citation	Masanobu Kii	Kagawa university	Japan
56223	25	14	28	21	Authors define sustainable development as "a wide concept, encompassing socioeconomic and environmental dimensions, envisaging long-term permanence and improvement." So why then are there two subsections devoted to the topic (8.2.1 and 8.2.2)? It would be better to integrate into single, short section.	Noted; there is a point here. 8.2.1. is SD and 8.2.2. is Economic development, competitiveness, and equity. I would merge both under the SD umbrella	Government of United States of America	U.S. Department of State	United States of America
63751	25	17	25	18	Proposed edit: post-2015 UN 2030 Agenda for Sustainable Development and the Sustainable Development Agenda SDGs	Reject. Keep a more broad concept.	Government of Canada	Environment and Climate Change Canada	Canada
4077	25	18	25	18	to make the following change, with the exact terms and wordings: '[…] including a specific goal on climate action (SDG 13) and sustainable cities and communities (SDG 11)	Accepted	Zaheer Allam	Deakin University	Mauritius
79221	25				Following above comment, Figure 8.6 could summarize quantitative data ranges in the impacts section and list source of evidence (empirical, simulation), over what time horizon and spatial scale do co-benefis accrue, and citation. Regarding the current graph some if it is kept, suggest indicating how are the levels of confidence are determined?	Rejected. This figure is based on a qualitative assessment	Martino Tran	UBC	Canada
27775	25		25		Figure 8.6 and analysis presented in Section 8.2 should not refer exclusively to co-benefits, but also consider potential adverse effects.	Noted. SEction 8.2 refers to trade-offs	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
21741	26	7	26	8	These experiences should be specified, because this cannot be a generality.	Accepted and revised	Government of France	Ministère de la Transition écologique et solidaire	France
21743	26	10	26	11	The link to energy poverty is unclear without further discussion or example. The relationship between some mitigation measures and energy poverty is more clearly discussed on Page 28 Lines 7 and 18 so it could be deleted here.	Accepted. Sentence deleted in response to comment	Government of France	Ministère de la Transition écologique et solidaire	France
5419	26	12	26	12	replace Renewables" by "low carbon sources"	Reject. Reference quotes "renewables".	Michel SIMON	Retraité/ Pdt d'association	France
5421	26	18	26	18	replace Renewables" by "low carbon sources". I seriously doubt that 74 cities are 100% renewable energy!! Please check against scientifically reviewed publications.	Reject. Reference quotes "renewables".	Michel SIMON	Retraité/ Pdt d'association	France
5423	26	21	26	21	replace Renewables" by "low carbon sources"	Reject. Reference quotes "renewables".	Michel SIMON	Retraité/ Pdt d'association	France
9935	26	25		39	Not only health, the co-benefit also result in terms of equity whereas the poor can walk and children can play outdoors for example.	Partially accepted. Revised in response to comment	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
46041	26	40	26	44	The beginning of this sentence (Urban forestry and green infrastructure such as NBS act as both climate mitigation and adaptation measures …) implies, that NbS are a part of green infrastructure and urban forestry. This is inconsistent with the definition of NbS in glossary, where NbS are classified as actions to protect, sustainably manage and restore natural or modified ecosystems effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. In addition, NbS is a broad umbrella term going beyond the limits of the term green infrastructure. Green infrastructure is one element of NbS (see Cohen-Shacham et al. 2016: NbS for Societal Challenges).	Accepted and revised	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
70081	26	44	26	46	As one of the most recent medical studies regarding the assocation between air pollution and cardiovascular disease, it is useful to refer to the following artic Al-Kindi, S.G., Brook, R.D., Biswal, S. et al. Environmental determinants of cardiovascular disease: lessons learned from air pollution. Nat Rev Cardiol 17, 656–672 (2020). https://doi.org/10.1038/s41569-020-0371-2 In particular, Figure 2 of the article shows "the relationships between fine particulate matter (PM2.5) and death from ischaemic heart disease or stroke were determined using the Integrated Exposure–Response (IER) and the Global Exposure Mortality Model (GEMM) methods." Additional: Kim, S.Y., Kim, S.H., Wee, J.H. et al. Short and long term exposure to air pollution increases the risk of ischemic heart disease. Sci Rep 11, 5108 (2021). https://doi.org/10.1038/s41598-021-84587-x	Accepted and references added	Sang-Min Han	Hallym University	Republic of Korea
74931	26		27		Consider restoration of green spaces like Michuki park and other community parks	Noted. We don't include this specific case study however a range of nature based solutions are discussed later in the chapter	Government of Kenya	Kenya Meteorological Service	Kenya
79271	27	3	28	11	This could expand on the public infrastructure savings, consumer savings and environmental benefits of more compact urban development. See: * Todd Litman (2014), Analysis of Public Policies That Unintentionally Encourage and Subsidize Urban Sprawl, commissioned by LSE Cities (www.lsecities.net), for the Global Commission on the Economy and Climate (www.newclimateeconomy.net); at https://bit.ly/2QqPhzc. * Christopher B. Goodman (2019), "The Fiscal Impacts of Urban Sprawl: Evidence from U.S. County Areas, Public Budgeting and Finance (https://doi.org/10.1111/pbaf.12239); at www.cgoodman.com/files/papers/national-sprawl-expenditures.pdf.	Noted, but self-citation is not added as this is already reflected in existing citations.	TODD LITMAN	Victoria Transport Policy Institute	Canada
16435	27	3	28	21	Sustainable development is often depicted with three pillars- environmental, social and economic. So the 8.2.2 does not need (or is not appropriate) to be separated from the 8.2.1. The current sub-chapter 8.2.1 titled sustainable development includes discussions on co-benefits on health and environment and can be expanded to include 8.2.2.	Accept	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
65101	27	6	27	7	It is not clear what these targets relate to (SDGs?), some context needs to be provided first	Noted and revised.	Karishma Asarpota	ICLEI World Secretariat	Germany
21745	27	10	27	41	This chapter is in the conditional and indicates the possible (negative) impacts of the mitigation measures. It should be oriented towards possible co-benefit solutions of which there are many experiences. Instead of writing lines 11 to 13, it would be necessary to indicate that planning and town planning policies exist today which promote functional and social diversity so as to increase local activities and maintain regulation of the land (a lot of publications on Barcelona, Ankara, Guayaquil, etc.). Likewise on lines 32 to 41, this paragraph forgets that green infrastructures are not only roofs and facades, but also concern a large-scale social movement for the re-vegetation of streets and avenues, for urban agriculture, for the re-creation of public spaces, which are carbon sinks with an important co-benefit at social, economic and health level. The last sentence is surprising confusing and unclear (line 41).	Noted and revised. Co-benefits are also discussed in the section and in section 8.2.3. The confusing sentences are revised.	Government of France	Ministère de la Transition écologique et solidaire	France
7511	27	13	27	14	The recent The Economics of Biodiversity. Dasgupta Review (2021) could be quoted regarding trade-offs; see p. 369 "There is some evidence increasing urban population density has led to declining ecological integrity al local scale."	recent citations have already been provided.	Edoardo Croci	Bocconi University	Italy
21747	27	14	27	16	The findings of these studies are not explained. What exactly was the contribution explored by Rousseau et al and the potentials and impact levels analysed by Juraschek et al?	References to, and discussions of, these studies has been removed for the FGD	Government of France	Ministère de la Transition écologique et solidaire	France
65103	27	14	27	19	The relationship between the two studies cited Rousseau et al. (2019) and Juraschek et al. (2018) is not apparent to me. Further they appear to be unrelated to the next sentence on governance mechanisms and carbon lock-ins.	References to, and discussions of, these studies has been removed for the FGD	Karishma Asarpota	ICLEI World Secretariat	Germany
21749	27	19	27	19	" (…) resulting in carbon lock-ins " : this part of the sentence is unclear.	Accept	Government of France	Ministère de la Transition écologique et solidaire	France
65105	27	20	27	31	Some of these mitigation measures will not automatically reduce inequality unless coupled with changes to the structural drivers of such inequalities e.g. still dependent on who can access, which communities such transport facilities are located within, cultural sensitivities etc. The authors should reflect this since it is the main section focussed on equity	Noted and revised.	Karishma Asarpota	ICLEI World Secretariat	Germany
37223	27	20	27	47	An important issue with cities in developing countries is that changes are occurring rapidly for the infrastructure	Accept	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37225	27	20	27	47	to cope up. This is leading to villages getting converted to towns and towns becoming cities just on account of	Accept	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
37227	27	20	27	47	unplanned urbanization. The concept of city-village (cillage) is much more sustainable for countries like India,	Accept	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37229	27	20	27	47	where agriculture is yet an untapped industry.	Accept	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
78547	27	20	28	21	In the chapter, the relationship between urban mitigation strategies, sustainable development and inequalities are presented only through co-benefits and synergies between mitigation and social inequalities reduction. However, mitigation strategies could steghten social inequalities if they are not coupled with inequalities reduction policy. For instance, transit oriented development could make land and housing prices rise and foster gentrification processes, making access to the city and public transportation more difficult for lower classes, pushing them far from these areas with very good transit services. Green infrastructure could increase value of land and without value capture processes this could impact inequalities between poor and whealthier neighborhood. Making urban development more compact and reducing urban extension increases pressure on land and increases land value as well. All those examples show that we have to pay attention to environmental justice issue at the urban /regional scale to foster a just transition and be sure that mitigation strategies won't strenghten inequalities between citizens, social categories, neighbohoods and parts of city regions.	Trade-offs have been mentioned in different parts, including 8.2.2.	Géraldine PFLIEGER	University of Geneva	Switzerland
9937	27	24		31	Traffic congestion impact can also be measured by time spent in the congested streets such as Tomtom traffic index. Such measurement can be further analysed in terms of health since it adds to the sedentary lifestyle and impact on obesity due to being less active.	noted and revised.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
75597	27	31	27		End of paragraph: Accessibility as the basis for transport planning, leading to an ideal 'transport justice' is an increasing field of knowledge. Ref: Cooke, S., R. Behrens, M Zuidgeest. 2018. 'The relationship between transit-oriented development, accessiblity and public transport viability in South Africa cities: aliteratu review and problem framing' Centre For Transport Studies. University of Cape Town.	the sentence is already supported by several citations.	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
21751	27	32	27	32	In contradiction with the last line 41. In addition, the question of green infrastructure is very dependent on the geographical area. You cannot compare England with Morocco. The potential for the use of plants and local practices are very different.	Noted and revised	Government of France	Ministère de la Transition écologique et solidaire	France
65109	27	32	27	32	Green infrastructure can also have a positive benefit to psychological/mental wellbeing and health. See for example: Neighbourhood greenness and mental wellbeing in Guangzhou, China: What are the pathways?https://www.sciencedirect.com/science/article/abs/pii/S0169204619303214 and A greener urban environment: Designing green infrastructure interventions to promote citizens' subjective wellbeing https://www.sciencedirect.com/science/article/abs/pii/S0169204618310107	Health benefits have been mentioned in Section 8.2.1.	Karishma Asarpota	ICLEI World Secretariat	Germany
71967	27	32	27	41	How about blue infrastructure?	Noted and revised.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74933	27	32	27	41	Consider including options within the Kenyan NCCAP II on greening infrastructure	Rejected. While context-specific examples are useful, we have tried to use generalizable arguments as much as possible.	Government of Kenya	Kenya Meteorological Service	Kenya
60629	27	35	27	37	The sentence does not make it clear what the beneficiaries are willing to pay for. It is also highly specific, and should be placed in the context of WTP in gener a discipline with thousands of studies.	Noted and revised. Beneficiaries are willing to pay for the premium price due to greening.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
21753	27	36	27	36	About "[...] an additional GBP 1,4 to GBP 10,5 [...]": These figures are unclear. Are they per square meter?	Very good point. Noted and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
65107	27	37	27	38	This is already mentioned previously on lines 11-13.	Accepted. deleted the duplicate sentence	Karishma Asarpota	ICLEI World Secretariat	Germany
21755	27	38	27	38	Please consider to add add : "(...) to the periphery. Such phenomena of "climatological gentrification" have been pointed out as a potential adverse side effect of adaptation measures. Other measures (...)" (whitehead, 2013) Whitehead, M, 2013, Neoliberal Urban Environmentalism and the Adaptive City: Towards a Critical Urban Theory and Climate Change, Urban Studies, 50, 7, pp 1348-1367 DOI 10.1177/0042098013480965	The reference is not new.	Government of France	Ministère de la Transition écologique et solidaire	France
7513	27	41	27	42	For a literature review on benefits of nature-based solutions, see Croci, Lucchiita, Penati (2021), Sustainability, Valuing Ecosystem Services at the Urban Level: A Critical Review. Sustainability 2021, 13, 1129, in particular see table A	Self citation. Rejected. Relevant literature has already been cited.	Edoardo Croci	Bocconi University	Italy
49603	27	42	28	13	The paragraph which explains about the measures and co-benefits of waste management, food source and health care, storm water management, can be properly sequenced and integrated.	Noted.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65111	27	46	27	46	No reference is given here to support the 'high agreement and medium evidence'	Noted and referecne added.	Karishma Asarpota	ICLEI World Secretariat	Germany
79223	27				Section 8.2.2 Economic development, competitiveness and equity is of particular importance in terms of making the case to policy makers that economy does not have to be traded off for climate mitigation. This section would be strengthened with more synthesis of quantitative evidence e.g. economic valuation of green infrastructure, jobs related to green economy and energy, avoided longer term costs from taking early urban mitigation action (e.g. lost productivity (GDP) from congestion, damage costs from air pollution, etc.)	Noted and revised.	Martino Tran	UBC	Canada
71969	28	5	28	13	How about blue infrastructure?	Noted and revised.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
145	28	5	28	5	the implementation of green spaces might also increase social inequality within the cities, see debate around green gentrification	Accepted, this is addressed earlier in the section	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
18417	28	6	28	9	Agreed with the point but if these types of buildings are more expensive to build in the first place they are implicitly unaffordable for poorer social groups so there is an element of access to high quality/energy efficient housing in general.	Noted and revised.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
24599	28	9	28	13	The actual production of benefits for urban poor living in flood-prone areas from community-level interventions depend on the quality of these interventions and the level of engagement between experts, authorities and local citizens. See e.g. J. Mulligan et al (2020). https://doi.org/10.1016/j.ancene.2019.100227 It is not correct to say that "any measures that reduce such disproportionate impacts would enhance social equity."(line 12-13). Suggested rephrasing: "Generally, the urban poor are expected to be disproportionately affected by climate change impacts. Carefully designed measures that reduce such disproportionate impacts by involving experts, authorities and citizens would enhance social equity (Pandey et al. 2018; He et al. 2019; Mulligan et al 2020).	Very good point. Noted and revised.	David Nilsson	KTH Royal Institute of Technology	Sweden
21757	28	11	28	12	We suggest nuancing the last sentence of the paragraph, and thereafter foregrounding it in the paragraph in order to emphasise the message. Indeed, one could distinguish vulnerability and impact. Much literature shows that poor communities often adapt much faster than the rest of the population, especially in developing countries. It is undoubtedly obvious that exposure and vulnerability will be greater among poor populations, but the impact may be greater in soci and economic terms among populations of middle class working in the formal sector.	Noted and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
18419	28	11	28	13	In design there is the principle of designing for the most vulnerable user to benefit all other users. Could such a principle be built into urban development? The way the paragraph reads is more like an acceptance but there is a choice in spatial planning and design.	Noted and revised.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
65113	28	14	28	16	No explanation of economic decoupling is provided - presumably it will also have a negative effect on livelihoods and employment at least in the short-term as people transition to different jobs and are required to learn new skills etc?	Noted and revised.	Karishma Asarpota	ICLEI World Secretariat	Germany
21759	28	20	28	21	"Sustainable and low-carbon urban development that integrates issues of equity, inclusivity, and affordability while safeguarding urban livelihoods, providing access to basic services, lowering energy bills, addressing energy poverty, and improving public health can also improve the distributional effects of existing and future urbanisation" On the contrary, shouldn't we mention the opposite of co-benefits? For example, revegetation can lead to the emergence of insects or animals, which are considered harmful by the population (e.g. mosquitoes). This example also raises the question of the acceptability of certain actions and the distribution of co-benefits (environmental justice, social justice, etc.).	Noted. Trade offs have been mentioned throughout the section.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4533	28	22	28	22	Head 8.2.3 … Add Mitigation and Adaptation finance	This section is about interactions between adaptation and mitigation measures. Finance is beyond the scope of the section.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
9939	28	22	29	28	It may provide the readers a better understanding if there is an explanation of differences between mitigation and adaptation from resilience body of literature viewpoint. Figure 8.7 does not seem to serve this purpose.	Figure 8.7 does not intend to illustrate differences between adpatation and mitigation from resilience literature vuewpoint. Differences between these two have been discussed earlier in the chapter.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
21761	28	25	28	25	page 28 line 25 and figure 8.7. "Measures related to different sectors..." how are the sectors justified? why for example is the food not in it? Moreover, the categories are not separated: energy is used for transport, water, waste.	These are justified based on an extensive literature review. Details are available in the relevant citation	Government of France	Ministère de la Transition écologique et solidaire	France
71971	28	27	28	27	add blue infrastructure	The sector also includes blue infrastructure. We have kept it as it is because in the figure that we have relied on only green infrastructure is mentioned.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21763	28	31	28	33	You could add, however, that, in the case of a real city (i.e. taking into account the inertia in cities evolutions compared to the speed of climate change), policies aiming at reducing emissions by increasing urban densities may not always significantly impact UHI. It really depends on the city and more research would be useful on this point. For instance, in the following paper, simulations show that policies making a city (Paris) more dense lead to an increased UHI, but that this increase may not be significant in terms of impact on human health. Lemonsu, A., V. Viguié, M. Daniel, and V. Masson. 2015. "Vulnerability to Heat Waves: Impact of Urban Expansion Scenarios on Urban Heat Island and Heat Stress in Paris (France)." Urban Climate 14: 586–605.	We have taken this into account and revised accordingly	Government of France	Ministère de la Transition écologique et solidaire	France
73083	28	31	28	33	ou could add, however, that, in the case of a real city (i.e. taking into account the inertia in cities evolutions compared to the speed of climate change), policies aiming at reducing emissions by increasing urban densities may not always significantly impact UHI. It really depends on the city and more research would be useful on this point. For instance, in the following paper, simulations show that policies making a city (Paris) more dense lead to an increased UHI, but that this increase may not be significant in terms of impact on human health. Lemonsu, A., V. Viguié, M. Daniel, and V. Masson. 2015. "Vulnerability to Heat Waves: Impact of Urban Expansion Scenarios on Urban Heat Island and Heat Stress in Paris (France)." Urban Climate 14: 586–605.	This comment is the verbatim copy of the previous comment	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
18421	28	37	28	39	Assumed "private corporate interests"	Corrected	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21765	28	37	28	39	About "Ambitious mitigation and adaptation plans could benefit private interests resulting in adverse effects on the urban poor (Chu et al. 2016; Mehta et al. 2019b)" There is a lack of linkage with well-being issues, in connection with sustainable development goals.	Here it implies that ambitious mitigation plans may limit the capacity to deal with other issues such as poverty	Government of France	Ministère de la Transition écologique et solidaire	France
71973	28	40	28	42	Consider also blue carbon	Revised accordingly	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
1681	28	41	28	42	change from (see Section 8.4.4) (Berry et al. 2015; Wamsler and 42 Pauleit 2016; WCRP 2019) to ([see Section 8.4.4] Berry et al. 2015; Wamsler and 42 Pauleit 2016; WCRP 2019)	Revised accordingly	Sunday Abuje	University	Kenya
1683	28	46			change from ...(UIAFs) (Ford et al. 2018; Caparros-Midwood et al. 2019)... to ...([UIAFs] Ford et al. 2018; Caparros-Midwood et al. 2019)...	UIAFs is an acronym. Different from the previous comment	Sunday Abuje	University	Kenya
46937	28	46	28	46	among IAF could be also referenced the follwoing : Walsh et al. (2013) Experiences of integrated assessment of climate impacts, adaptation and mitigation modelling in London and Durban. Environment & Urbanization 25, https://doi.org/10.1177/0956247813501121	Taken into account	Valentina Palermo	JRC	Italy
49605	28	46	29	3	scenario-based studies with examples can be demonstrated in detail to get better understanding of how simultaneous consideration of adaptation and mitigation can effectively reduce GHG emissions	That is a good suggestion. However, the chapter focuses on synthesizing knowledge and as much as possible we avoid reporting individual cases	Satyaprakas Das Das	Manipal Academy of Higher Education	India
21767	29	4	29	7	This paragraph is not very clear and contains affirmations which seem strange, or at least unsupported by current literature. Examples and/or references are needed, else I would suggest deleting this paragraph.	This is based on the systematic literature review. reference has now been added	Government of France	Ministère de la Transition écologique et solidaire	France
49607	29	4	29	7	Citation required in page no:29 for lines 4,5,6,7	Citation added	Satyaprakas Das Das	Manipal Academy of Higher Education	India
73085	29	4	29	7	This paragraph is not very clear and contains affirmations which seem strange, or at least unsupported by current literature. Some mitigation measures may for instance be unrelated to adaptation, or, even increase ourvulnerability to climate change impacts (e.g. forbidding air conditioning use). Examples and/or references are needed, else I would suggest deleting this paragraph.	This is also verbatim copy of the comment in line 468	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
4251	29	7	29	8	Figure is difficult to interpret - does the width of each grey box denote something? What do the different widths of orange and red indicate? The figure caption also contains a lot of text that could be more easily read in paragraph form	The caption is revised to better indicate what the stream width means. This information was added as footnote as it is directly related to the figure and is important for its interpretation	Lee White	Australian National University	Australia
7931	29	7	29	8	The role of behavioural change is really limited in this chart. Mitigation potential can be significantly larger than that. I assume that this very minor role is mainly the result of the fact that models/tools/studies (background of this report) tend to neglect / are not capable of properly considering the effects of behavioural changes.	The reason is that they have received limited attention in the literature	Rocco De Miglio	Energy analyst and modeller	Italy
71975	29	7	29	8	figure is not reader friendly	Higher resolution has been submitted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71977	29	7	29	8	pls add blue infrastructures	Taken into account	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
1685	29	8			Figure 8.7 is not clear.	Higher resolution has been submitted	Sunday Abuje	University	Kenya
71979	29	8	29	27	Why "Behavioural issues" are in black text and others in white?	Behavioral is not in black. The white is space between behavioral and building	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
4955	29	8	29	8	Figure 8.7 cannot be read as it is blurred	Higher resolution has been submitted	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
49609	29	8	29	8	Fig 8.7 needs to be more legible	Higher resolution has been submitted	Satyaprakas Das Das	Manipal Academy of Higher Education	India
21769	29	9	29	25	What is exactly shown here is not very clear. For instance, it is not indicated whether the thickness of the lines is related to the number of studies, or if it is simply a qualitative graph. In the latter case, this graph may not be really useful.	Caption revised	Government of France	Ministère de la Transition écologique et solidaire	France
21771	29	9	29	25	(page 29 line 9 and so on) There is a too-long analysis for a schemes title. Perhaps, it'll be better to propose just a title under the diagram followed by a summary in a frame.	The long caption was added to better indicate the meaning of the figure	Government of France	Ministère de la Transition écologique et solidaire	France
73087	29	9	29	25	What is exactly shown in figure 8.7 is not very clear. For instance, it is not indicated whether the thickness of the lines is related to the number of studies, or if it is simply a qualitative graph. In the latter case, this graph may not be really useful/	This is also a verbatim copy of Comment in line 479	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
10709	29	9	29	9	A critical issue in this section is the case where mitigation and adaptation are in a trade off (rather than synergy) situation. An improved figure 8.7 should show the presence of trade offs.	We understand the importance of this issue, but showing trade offs in the same figure is unfortunately not doable. Another figure can be added depending on space availability	Philippe Waldteufel	CNRS	France
79225	29				For figure 8.7 is there data used to generate the sankey diagram? If so suggest proportions (%) for each sector.	It is mentioned that this is based on literature review	Martino Tran	UBC	Canada
21773	30	2	30	3	This sentence is unclear: the "urban metabolism" corresponds to the analysis of the flows of resources and energy through the cities.	Taken into account and rephrased accordingly.	Government of France	Ministère de la Transition écologique et solidaire	France
1763	30	5	30	30	This article is relevent to this section. Please review it. 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, John Wiley & Sons	Rejected. The articles cited in that section are global-scale review or synthesis papers. Also suggested paper appears to be self-citation.	Md Arfan Uzzaman	FAO	Bangladesh

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
6141	30	5	31	15	Following article provides a latest observation of global urban land use dynamics. - Liu, X., Huang, Y., Xu, X. et al. High-spatiotemporal-resolution mapping of global urban change from 1985 to 2015. Nat Sustain 3, 564–570 (2020). https://doi.org/10.1038/s41893-020-0521-x	Accepted. Part of the text is revised to reflect the relevant findings from the Liu et al reference and the paper cited accordingly.	Masanobu Kii	Kagawa university	Japan
21775	30	9	30	10	Thank you for specifying what kind of implications?	Revised.	Government of France	Ministère de la Transition écologique et solidaire	France
21777	30	22	30	24	Urban expansion should be put into perspective. Urban growth in the world was 38.1 Mha between 1992 and 2015, which led to the direct loss of 7.9 Mha of forest and shrublands. Deforestation in the world represents between 2000 and 2012 230Mha, ie 30 times more. Moreover, it is not urban expansion that leads to GHG emission problems, but the centralist model of the city. The old model of "city centers" must be replaced by models of decentralization and functional diversity. Expansion is inevitable with urban growth, so it is necessary to find new models of town planning favoring the dispersion of services, activities and transport.	Rejected. Earlier in the same section, it is already stated that urban areas account for about 7.6% of the global land area. Also, the text referred to in the comment simply points to the type of growth and does not claim or suggest anything about GHG emissions.	Government of France	Ministère de la Transition écologique et solidaire	France
74991	30	22	30	24	The statement from line 22-24 is hanging, how is the expansion of cities affecting cities- I think linking this with the demand to use motorised vehicles may be an important way of contextualizing the statement	Rejected. The circular logic mentioned in the comment does not exist. Perhaps meant to reference somewhere else in the document	Government of Kenya	Kenya Meteorological Service	Kenya
37507	30	26	30	26	The term "land-use efficiency" should be defined here, even if this is given in the cited publication.	Revised.	Government of India	Ministry of Environment, Forests and Climate Change	India
17265	30	30	30	32	The Carbon Disclosure Project (CDP) has recently published cities where it has at least 70 percent green electricity. According to the World Economic Forum, unsubsidized renewable energy was the cheapest source of electricity in 30 countries in 2017. Urban centres are responsible for more than 70% of global greenhouse gas emissions and initiatives to make them more sustainable impacts on each country's landscape. The installation of plates in cities contributes to lower the price of this technology, which has dropped by 73 per cent since 2010, and is also an important source of generation distributed due to its near-demand situation. In Burlington, England, the authorities have managed to obtain all the energy from the combination of solar, wind, hydraulic and biomass plants, boosting local companies that base their business on these technologies and encouraging self-suffling by citizens themselves. Another example, energy in Iceland is almost entirely based on renewable energy. Cities grow more and more every day. This causes what is known as "urban heat island" to form, a metropolitan area that is much warmer than the surrounding rural areas. The objectives should draw a very clear path of decarbonization, electrification and use of renewables. It is therefore necessary that the optimal regulatory framework that guides our energy transition and is the result of a great political consensus. It is possible to subvert the energy order and that this requires cities and citizens to be placed in the centre, as well as by electrification with renewables. It is imperative to reorient this vision of urban planning in order to recover some of that public space for citizens. We need to work on tables of self-consumption tax credits in major cities. In eight years (2008-2016) the photovoltaic scale has dropped from a 100 price level to a level 20, batteries to 30 or smart applications to 60. Measures should serve to achieve a "Zero Emissions" target by 2050, with a final energy consumption of 100 percent renewable, and where at least 50 percent of the energy is produced in the cities themselves and in their surroundings. Real Estate Tax bonuses should be boosted; in the Tax on Constructions, Facilities and Works or in the Tax of Economic Activities (IAE) so that energy self-consumption and the development of the energy transition is a success.https://www.elsoldigital.es/malaga-emisiones-cero-carlos-ramirez-sanchez-maroto-doctor-en-derecho-y-sociedad/	Noted.	carlos ramirez	AFA-ANDALUCIA	Spain
15269	30	31	30	39	In expressing urban land use efficiency, the ratio of new urban population to new urban built-up land area is used to draw the erroneous conclusion that urban land use efficiency in China and India is low, ignoring the fact that the base value of urban land area per capita in developing countries is inherently small due to different levels of economic development and stages of development. With economic development and social progress, even if the urban population does not increase, the urban built-up area is still expanding. If we only focus on the incremental indicators of new urban population and new land area while ignoring the stock indicators of original population and original land area, it will be difficult to correctly reflect the real situation and easily mislead policy makers and readers. It is suggested to objectively state the facts and modify the conclusion of “India and China represent the most inefficient trends in urban land use”.	Revised. I replaced the plot displaying the rates with another that shows the change in urban population densities (a stock variable of the sort mentioned in the comment) from 1970 to 2010. I also adapted the original figure to display the trends for the 10 IUCN regions. I also revised the text accordingly.	Government of China	China Meteorological Administration	China
21779	30	32	30	33	Have you seen if it's correlated with the wealth of a population which becomes richer?	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
74993	30		31		The discussion on informality should also highlight the issue of urban renewal and upgrading schemes as a possible way of addressing Climate Change concerns	Rejected. The pages referred to in the comment do not have anything on informality. Section 8.3.1.1 on p33-34 does and in that section the points raised in the comment are already addressed. Also, "urban renewal" has negative connotations and I would not use the term in the report.	Government of Kenya	Kenya Meteorological Service	Kenya
21781	31	3	31	7	If you can give the ratio of agricultural land in each territory cited to the ratio of urban land expansion, it'll be more convincing. The percent of urban expansion isn't alsways correlated with the population growth. It depends as well of the initial land use.	Rejected. This is simply the proportion of total land that was converted to urban based on what is reported in the studies included in the synthesis. It has nothing to do with population growth.	Government of France	Ministère de la Transition écologique et solidaire	France
21783	31	8	31	9	The link between loss in crop production due to urban expansion and the emergence of new cropland is not explained. How exactly does the loss of agricultural land to urban areas result in new cropland?	Taken into account. The relevant sentence is revised for clarity.	Government of France	Ministère de la Transition écologique et solidaire	France
16459	31	11	31	12	it was stated that the quantifications are rare but the range is provided. Do "quantifications" indicate "instances"?	Taken into account and the relevant sentenc is rephrased.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21785	31	13	31	15	It could be added that the drivers of urban land area increase have been widely studied in urban economics. See for instance this famous paper: Brueckner, Jan K. 2000. “Urban Sprawl: Diagnosis and Remedies.” International Regional Science Review 23 (2): 160–71. Studies have also mobilized the mechanisms studied by urban economists to create prospective scenarios of future land area increase which are coherent wit the SSP scenarios. For instance: Viguié, Vincent, Stéphane Hallegatte, and Julie Rozenberg. 2014. “Downscaling Long Term Socio-Economic Scenarios at City Scale: A Case Study on Paris.” Technological Forecasting and Social Change 87 (September): 305–24.https://doi.org/10.1016/j.techfore.2013.12.028.	Partially accepted. The sentence is revised and two relatively recent global studies on urban expansion and its drivers and one of the suggested references added. The other on Paris is not that relevant to the point of the sentence.	Government of France	Ministère de la Transition écologique et solidaire	France
73089	31	13	31	15	It could be added that the drivers of urban land area increase have been widely studied in urban economics. See for instance this famous paper: Brueckner, Jan K. 2000. “Urban Sprawl: Diagnosis and Remedies.” International Regional Science Review 23 (2): 160–71. Studies have also mobilized the mechanisms studied by urban economists to create prospective scenarios of future land area increase which are coherent wit the SSP scenarios. For instance: Viguié, Vincent, Stéphane Hallegatte, and Julie Rozenberg. 2014. “Downscaling Long Term Socio-Economic Scenarios at City Scale: A Case Study on Paris.” Technological Forecasting and Social Change 87 (September): 305–24.https://doi.org/10.1016/j.techfore.2013.12.028.	Same comment as Row 498.	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
64219	32	0	32	0	need better quality figure	Accepted	Ova Candra Dewi	Universitas Indonesia	Indonesia
65117	32	1	32	1	Figure 8.8 should be presented in higher resolution.	Accepted	Karishma Asarpota	ICLEI World Secretariat	Germany
65119	33	2	33	2	Figure 8.9 should be presented in higher resolution.	Accepted	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21787	33	3	33	5	The bart chart is very difficult to analyze. Firstly, it shows very clearly that the part "other" than agricultural and nature is very low. Secondly, if you take the first exemple of north america, the relative low share of agriculture is offsetted by the relative high share of nature. The lost is bigger in agricultural part but if you take Latin America, the lost is bigger in the nature part. All depends of the initial land use.	Rejected. The barchart shows the proportion of total urban expansion that was converted from different land covers. There is no offsetting. In the case of N America, for example, it simply shows that nearly 15% of total urban expansion came from agricultural lands, and nearly 85% from natural land with the remaining few % having come from other land covers. Ultimately, what is converted to urban of course depends on the initial land covers around the expanding cities but that is a moot point. What matters is how much of what land covers was lost to urban land expansion.	Government of France	Ministère de la Transition écologique et solidaire	France
21789	33	7	33	7	About section 8.3.1.1. Informal settlements. Informal setllements" should be better defined and qualified. The wording suggests that informality is desirable. Informal settlements concentrate significant vulnerabilities and living conditions are precarious, with highly deteriorated indicators of well-being. A more cautious tone should be adopted.	Accepted. Definition added for FGD.	Government of France	Ministère de la Transition écologique et solidaire	France
21791	33	7	33	7	The numbering of this section is not right	Noted. We will ensure correct numbering for FGD - although 8.3.1.1 is the correct number for this subsection.	Government of France	Ministère de la Transition écologique et solidaire	France
4957	33	7	34	10	The section shows co-benefits deriving from some mitigation scenarios proposed for informal settlements; however, trade-offs are missing. For instance, the development of low energy intensive residential areas would entail a use of some carbon intensive building materials such as concrete and thermall insulation whose manufacture would, in turn, affect climate. I would suggest to add them	Noted. In the FGD, we discuss trade-offs in 8.1.5 and throughout 8.2, as well as in 8.4 in the context of mitigation options.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
56225	33	7	34	10	Commend the emphasis on informal settlements' potential to accelerate low carbon transitions. However, it is fundamental to also assess literature on how to target the urban planning and investment decisions that shape patterns of emissions by these settlements. For instance, how to shift policies around the provision, design, location, and operation of electricity, transportation, and other services and infrastructures in ways that accelerate this transition. Historically, in cities such as Mumbai, India, for instance, elites pushed a wider scale rollout of electricity infrastructure than they did for water, drainage, and sanitation, with the latter spreading along lines of formal development and legal housing. While they are important, actions by informal settlers alone cannot overcome the deep and lasting influence these decisions have had in heightening patterns in energy and water use in this and other cities.	Noted. We do address this in several places in the FGD, including 8.6.2.	Government of United States of America	U.S. Department of State	United States of America
9941	33	8		14	This paragraph may be useful to address our previous comment on page 5 chapter 8	Noted.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
21793	33	8	33	8	"Informal settlements" must be defined. Isn't this sentence in contradiction with what was developed in paragraph 8.2.2?	Accepted. Definition added for FGD.	Government of France	Ministère de la Transition écologique et solidaire	France
65121	33	8	34	10	The definition of 'informal settlements' must be presented, either in this section or in the Glossary of the report.	Accepted. Definition added for FGD.	Karishma Asarpota	ICLEI World Secretariat	Germany
65123	33	8	34	10	There is a lack of discussion on the other social and political aspects that come with applying low-carbon solutions within informal settlement areas for example governance and policy, marginalization and social justice, potential displacement.	Noted. Discussed in Section 8.2 and elsewhere in FGD.	Karishma Asarpota	ICLEI World Secretariat	Germany
5425	33	13	33	13	replace Renewables" by "low carbon sources"	Noted. We use renewable when the literature mentions renewable.	Michel SIMON	Retraité/ Pdt d'association	France
5427	33	21	33	21	replace Renewables" by "low carbon sources"	Noted. We use renewable when the literature mentions renewable.	Michel SIMON	Retraité/ Pdt d'association	France
7515	34	11	34	30	Literature on urban emission drivers should be expanded. For example, there is a growing availability of data in literature on European cities in papers about the Covenant of Mayors. This can reinforce the significativity of some drivers.	Rejected. The section refers to trends for which there is very little literature, the work mentioned does not include trend information but is rather, static or single-city analysis from which general information could be derived.	Edoardo Croci	Bocconi University	Italy
49611	34	12	34	14	Please discuss which key drivers will affect the Co2 emissions and which are the dominant drivers who have been affecting the Co2 emission. This is not clear in the paragraph; therefore, need to elaborate on it.	agreed. a rundown of drivers would be helpful. noted in chapter text	Satyaprakas Das Das	Manipal Academy of Higher Education	India
71981	34	12	34	18	In the text was presented information that increase in population density lead to declines in per capita emissions. Potentially should be mentioned that it is not the only one factor - there is also a dependancy from the technological level - at the beginning of development stage the cities in emerging economies have lo overall technological level, so by increasing GDP, the emissions level per capita goes very stright up until reaches the developed countries level, and only after stabilises and further increasing population density in the city, the emissions level per capita starting to decrease. Therefore the population density is a function parameter of few key factors.	This appears to be referring to Kuznets-type relationships. Text will be modified.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74935	34	12	34	30	Consider including the major emission sectors in cities; Waste, Energy and Transport- Deadline 2020 (C40 Cities)	for trends? I do not see trend information in the stated reference.	Government of Kenya	Kenya Meteorological Service	Kenya
21795	34	14	34	17	This indicates the ceratin effectiveness of mitigation policies in developed countries and an absence of these policies in developing countries.	that is hard to say, so we will leave text as is.	Government of France	Ministère de la Transition écologique et solidaire	France
21797	34	17	34	18	Please consider the following 2 questions: This sentence is related to the previous one? Is this a growth in density over time, or between cities?	the sentence is not related to the previous. the change statements all relate to time and not across cities.	Government of France	Ministère de la Transition écologique et solidaire	France
16463	34	23	34	23	remove "s" in "declines"	done	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21799	34	29	34	30	About sentense "There is one [...] as other": we suggest to specify why	text has been rewritten, but the question posed cannot be answered from the cited literature.	Government of France	Ministère de la Transition écologique et solidaire	France
18423	36	1	36	1	Section 8.3.2.1 on built environment - would the authors consider cross referencing to the chapter on buildings - flag that more detail is in that chapter perhaps? Assuming that there must be similar points made on sustinable building techniques and materials which are probably elaborated on in the buildings chapter.	Accepted. The last sentence in this section refers to the buildings chapter.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21801	36	1	36	1	the numbering of this section is not right	Rejected; the numbering is correct	Government of France	Ministère de la Transition écologique et solidaire	France
65125	36	1	36	39	For 8.3.2.1, the specified title of the subsection is misleading, as given the current title, other aspects of infrastructure and resource demand should be included and not construction materials, such as water supply systems, telecommunications, transport systems, and waste management. If the intent is to primarily focus on buildings and infrastructure, the title should probably be changed.	Accepted. The title is revised.	Karishma Asarpota	ICLEI World Secretariat	Germany
60631	36	2	36	2	Language editing required. Missing words?	Accepted. "of" is added after "growth"	Evyatar Erell	Ben-Gurion University of the Negev	Israel
75599	36	2	36	2	the growth of...	Accepted.of is added after "growth"	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
4959	36	2	36	3	As in the comment at line 18	Noted. We did not find the comment in line 18.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
9943	36	13		19	It may be difficult to direct toward timber use in building construction in Indonesia as it is not yet as efficient as the steel and concrete in terms of distribution and construction phase. Innovation of engineered timber or other environmentally friendly building materials that meet structural requirements in disaster prone areas, with large variety of disaster types, such as Indonesia is still considered as a big challenge.	Noted. Indeed the transition may not be easy, but it also can not be more complicated than adoption of steel and concrete in construction, which production is substantially more complicated than the one of mass timber. Challenges faced in adoption and application of mass timber technology has been studied and implemented in different countries around the world and transition to biomass based materials will entail sharing of that knowledge.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21803	36	13	36	13	It would be necessary to add glass and aluminum, which are major contributors to emissions, and increasingly used in construction. Glass, in particular, strong contributes to energy growth through the widespread use of air conditioning. Smith, Peter F., 2005, Architecture in a climate of change. Oxford: Architecture Press, Elsevier, 278p. Lundgren, K. & T. Kjellstrom, 2013, Sustainability challenges for climate change and air conditioning use in urban aereas. Sustainability, 5, 3116-3128. doi:10.3390/su5073116 Gutai, Matyas & Abolfazl Ganji Kheybarib, 2021, Energy consumption of hybrid smart water-filled glass (SWFG) building envelope. Energy and Buildings, 230. https://doi.org/10.1016/j.enbuild.2020.110508 Schmitz, A., J.Kamińskia, B. M. Scalet & A. Soria, 2011, Energy consumption and CO2 emissions of the European glass industry. Energy Policy, 39(1), 142-155. https://doi.org/10.1016/j.enpol.2010.09.022 And a lot of publications in architecture, in order to reduce the "gray energy": "The concept of gray energy includes all primary energy not renewable that had to be spent during the different stages manufacturing, from the extraction of raw materials to disposal of site waste, through all manufacturing and processing process, including transport and the use of other aids". Voir Aardeplan ag, architectes , Energieagentur St.Gallen GmbH, Visiobau, 2016, l'énergie grise dans l nouveaux bâtiments, guidepour les professionnels du bâtiments. Berne_ SuisseEnergie, Office fédéral de l'énergie OFEN.	Accepted. Other materials such as glass and aluminium	Government of France	Ministère de la Transition écologique et solidaire	France
62109	36	13	36	39	Biomass-based materials are low carbon but their low thermal mass reduces the possibility to store energy : the use of solar gains and passive cooling is thus limited. A higher thermal mass also improves the resilience of buildings to heat waves. Depending on climatic conditions, it may therefore be needed to complement e.g. wood with thermal mass, preferably using earth or low carbon concrete. This can be studied using life cycle assessment and thermal simulation (Roux et al., 2016), (Peuportier et al., 2013). Roux C., Schalbart P., Assoumou E. and Peuportier B., Integrating climate change and energy mix scenarios in LCA of buildings and districts, Applied Energy 184 (2016), pp. 619-629 Peuportier, B., Thiers, S. and Guiavarch, A., Eco-design of buildings using thermal simulation and life cycle assessment, Journal of cleaner production, Volume 39, Pages 73-78, January 2013	Noted. Of cause properties of bomass based materials can be modified using earth or concrete or other materials. Construction materials with different density can be applied variable to improve building thermal performace. Thermas mass is a chalanging strategy to implement at the building system level. The suddelties of this discussion are beyond the scope of this section.	Bruno Peuportier	MINES ParisTech	France
3483	36	14	36	14	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)." Xi, F.; Davis, S.J.; Ciais, 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 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. R&D Serial N_2255, 1st ed.; PCA: Chicago, IL, USA, 2000. 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, 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://ibracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019). 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;10:4806https://doi.org/10.3390/su10124806	Taken into account. Indeed air exposed surfaces of materials including cement uptake atmospheric CO2. However the theoretical maximum carbon storage of cement by weight is ~12%, while for wood it is 50 %. The carbon storage of concrete of even lower, as it contains only 10-15% cement in addition to aggrigates and water. We added a sentence acknowledging the ability of cement to uptake CO2 and one of the references suggested by the reviewer: Xi et al. 2016	Miguel Angel Sanjuán	IECA	Spain
10373	36	14	36	14	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)." Xi, F.; Davis, S.J.; Ciais, 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 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. R&D Serial N_2255, 1st ed.; PCA: Chicago, IL, USA, 2000. 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, 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://ibracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019). 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;10:4806https://doi.org/10.3390/su10124806	Taken into account. Indeed air exposed surfaces of materials including cement uptake atmospheric CO2. However the theoretical maximum carbon storage of cement by weight is ~12%, while for wood it is 50 %. The carbon storage of concrete of even lower, as it contains only 10-15% cement in addition to aggrigates and water. We added a sentence acknowledging the ability of cement to uptake CO2 and one of the references suggested by the reviewer: Xi et al. 2016	Aniceto Zaragoza	Oficemen	Spain
11529	36	14	36	14	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)." Xi, F.; Davis, S.J.; Ciais, 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 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. R&D Serial N_2255, 1st ed.; PCA: Chicago, IL, USA, 2000. 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, 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://ibracon.org.br/Site_revista/Concreto_Construcoes/ebook/edicao91/files/assets/basic-html/index.html#102 (accessed on 16 October 2019). 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;10:4806https://doi.org/10.3390/su10124806	Taken into account. Indeed air exposed surfaces of materials including cement uptake atmospheric CO2. However the theoretical maximum carbon storage of cement by weight is ~12%, while for wood it is 50 %. The carbon storage of concrete of even lower, as it contains only 10-15% cement in addition to aggrigates and water. We added a sentence acknowledging the ability of cement to uptake CO2 and one of the references suggested by the reviewer: Xi et al. 2016	PEDRO MORA PERIS	UNIVERSITY	Spain
14985	36	15	36	15	The following red text with the reference literature should be added to the draft text; ----reinforced concrete (Ramage et al. 2017). "On the other hand, infrastructures containing cement take up 15 to 27% of CO2 emitted under the cement production from the atomsphere during the decades long life of the building as a carbon sink (Schneider 2019)*." *: The cement industry on the way to a low-carbon future. Cem. Concr. Res., 124, https://doi.org/10.1016/j.cemconres.2019.105792.	Noted. Indeed air exposed surfaces of materials including cement uptake atmospheric CO2. However the theoretical maximum carbon storage of cement by weight is ~12%, while for wood it is 50 %. The carbon storage of concrete of even lower, as it contains only 10-15% cement in addition to aggrigates and water. We added a sentence acknowledging the ability of cement to uptake CO2 and one of the references suggested by the reviewer: Xi et al. 2016	NAOKI AOKI	Japan Cement Association	Japan

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
3485	36	19	36	19	Please, add the following paragraph after "(Martin et al. 2018)": "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)." 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. 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	Taken into account. We do not think that adding a case study about lightweight frame timber building in the UK is appropriate to this section as we propose transition to mass timber, which has different structural and fire resistance properties. Mass timber refers to engineered wood products that are laminated from smaller boards or lamella into larger structural components such as glue-laminated (glulam) beams or cross-laminated timber (CLT) panels. We added however thedefinition of mass timber and the following sentence about fire safety: "In contrast to steel and concrete, mass timber is inflamable, but in large sections forms a self-protective charring layer when exposed to fire. Timber construction elements must therefore be sized to anticipate a potential charring layer that will protect the remaining 'cold wood' core.	Miguel Angel Sanjuán	IECA	Spain
10375	36	19	36	19	Please, add the following paragraph after "(Martin et al. 2018)": "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)." 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. 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	Taken into account. We do not think that adding a case study about lightweight frame timber building in the UK is appropriate to this section as we propose transition to mass timber, which has different structural and fire resistance properties. Mass timber refers to engineered wood products that are laminated from smaller boards or lamella into larger structural components such as glue-laminated (glulam) beams or cross-laminated timber (CLT) panels. We added however thedefinition of mass timber and the following sentence about fire safety: "In contrast to steel and concrete, mass timber is inflamable, but in large sections forms a self-protective charring layer when exposed to fire. Timber construction elements must therefore be sized to anticipate a potential charring layer that will protect the remaining 'cold wood' core.	Aniceto Zaragoza	Oficemen	Spain
11531	36	19	36	19	Please, add the following paragraph after "(Martin et al. 2018)": "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)." 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. 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	Taken into account. We do not think that adding a case study about lightweight frame timber building in the UK is appropriate to this section as we propose transition to mass timber, which has different structural and fire resistance properties. Mass timber refers to engineered wood products that are laminated from smaller boards or lamella into larger structural components such as glue-laminated (glulam) beams or cross-laminated timber (CLT) panels. We added however thedefinition of mass timber and the following sentence about fire safety: "In contrast to steel and concrete, mass timber is inflamable, but in large sections forms a self-protective charring layer when exposed to fire. Timber construction elements must therefore be sized to anticipate a potential charring layer that will protect the remaining 'cold wood' core.	PEDRO MORA PERIS	UNIVERSITY	Spain
12037	36	20	36	39	Building with biomass will require new governance measures. If timber and plant material for building is imported, an international agreement about who can claim the credit for the removal, along with a mechanism to monitor the flow of materials, and the carbon storage would be needed. For effective international oversight, more comprehensive and consistent national accounting standards and reporting are required. For assessments see McLaren D. A comparative global assessment of potential negative emissions technologies. Process Safety and Environmental Protection. 2012 Nov;90(6):489–500. Availabl from: http://dx.doi.org/10.1016/j.psep.2012.10.005 and . Oliver CD, Nassar NT, Lippke BR, McCarter JB. Carbon, Fossil Fuel, and Biodiversity Mitigation With Wood and Forests. Journal of Sustainable Forestry. 2014 Mar 28;33(3):248–75. Available from: http://dx.doi.org/10.1080/10549811.2013.839386 National and supra national building regulations may constrain the use of materials in some circumstances. However, there is evidence that these can and are changing in the light of the new potentialities of wooden structures. For example, wood building codes in Canada, China and the United States have all recently changed giving greater flexibility for the inclusion of wood in builds. Greenhouse Gas Removal. London: Royal Society and Royal Academy of Engineering https://royalsociety.org/topics-policy/projects/greenhouse-gas-removal/?gclid=EAIaIQobChMIg8292JCR7wIVjZntCh1MRgOVEAAYASAAEgIdHPD_BwE	Noted. We agree with the reviewer that building with wood will require new governance measures. We added a sentecne about the govenence to the section. A detailed discussion is however is beyond the scope of this section.	Paul Rouse	Carnegie Climate Governance Initiative (C2G) The Carnegie Council for Ethics and International Affairs	United Kingdom (of Great Britain and Northern Ireland)
18425	36	24	36	26	Is there an analysis of the forest area requried for such a scenario? Distribution of forests for biomass material might not be where development is likely to be higher, therefore this is potentially pointing in the direction of significant transport related emissions, amongst other potential environmental trade-offs.	Noted. This analysis does not explicitly assess the forest area, but relies on the estimates from other published study, which estimated sustainable forest harvest until 2050 for spatially distributed global forests: Yousefpour, R., Nabel, J.E.M.S., Pongratz, J. (2019) Simulating growth-based harvest adaptive to future climate change. Biogeosciences 16, 241-254.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
65127	36	24	36	28	Suggestion: The quantification of the storage of CO2 due to timber-based buildings could also be expressed in a more laymanized way to better present just how significant timber-based buildings could be to mitigation efforts in urban areas to readers from different sectors. Instead of simply stating it in terms of GtCO2-eq, more relative figures could be used. Moreover, additional sources can be added to support this statement. See here for suggestions: https://www.sciencedirect.com/science/article/pii/S2210670716305923	Rejected. We assume that the reviewer suggests using carbon dioxide equivalent as a metric measure for timber storage. This is problematic because the carbon dioxide equivalent (CO2e) is a metric measure developed to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. This measure is not really applicable to carbon storage of wood.	Karishma Asarpota	ICLEI World Secretariat	Germany
7517	36	29	36	36	The last two paragraphs start in the same way and could be better aligned.	Accepted. The last paragraph starts now with " The widespread adoption of ….".	Edoardo Croci	Bocconi University	Italy
21805	36	31	36	31	The issue of wood in construction, indeed, is an essential subject for the achievement of the objectives against GHB. Firstly: the wood construction sector cannot be dissociated from the wood energy sector and must be correlated with the stakes of biodiversity preservation. Second: the resource wood and wood energy raises more globally the question of the mobilization of all resources to live, eat, move ... The systemic approach must be specified here and be the subject of a targeted prospective study.	Accepted. The following sentence has been added: "A systematic analysis of timber demand, supply, trade, and potential competition for land with agriculture in different regions of the world is needed because future urban growth and building timber cities may lead to increased timber demand in regions with low forest cover"	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
3487	36	33	36	33	Please, add the following sentence after "...as biochar (Churkina et al. 2020).": "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	Rejected. Timber to North African countries does not necesserily have to come from Europe. Using sustainably managed African timber would desirable in the case highlighted by the reviewers. In terms of carbon, the important feature of timber is that it is rich in carbon (50% carbon by weight). None of the mineral based materials are capble storing as much carbon as timber does.	Miguel Angel Sanjuán	IECA	Spain
10377	36	33	36	33	Please, add the following sentence after "...as biochar (Churkina et al. 2020).": "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	Rejected. Timber to North African countries does not necesserily have to come from Europe. Using sustainably managed African timber would desirable in the case highlighted by the reviewers. In terms of carbon, the important feature of timber is that it is rich in carbon (50% carbon by weight). None of the mineral based materials are capble storing as much carbon as timber does.	Aniceto Zaragoza	Oficemen	Spain
11533	36	33	36	33	Please, add the following sentence after "...as biochar (Churkina et al. 2020).": "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	Rejected. Timber to North African countries does not necesserily have to come from Europe. Using sustainably managed African timber would desirable in the case highlighted by the reviewers. In terms of carbon, the important feature of timber is that it is rich in carbon (50% carbon by weight). None of the mineral based materials are capble storing as much carbon as timber does.	PEDRO MORA PERIS	UNIVERSITY	Spain
21807	36	35	36	35	Perhaps, you could add that the forest restoration could be sometimes done at the expense of agriculture. It could be the price to pay for a massive transition to biomass-based urban construction materials.	Accepted.The following statement has been added: "Agroforestry practices may help to elevate potential land-use conflicts between forestry and agriculture."	Government of France	Ministère de la Transition écologique et solidaire	France
3489	36	39	36	39	Please, add a new sentence in line 39: "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. Construction industry does not rely on locally sourced materials only. Construction materials trade is currently wide spread. If timber is not available locally, it can be imported from countires with extensive forests or forests can be planted of the climate allows.	Miguel Angel Sanjuán	IECA	Spain
10379	36	39	36	39	Please, add a new sentence in line 39: "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. Construction industry does not rely on locally sourced materials only. Construction materials trade is currently wide spread. If timber is not available locally, it can be imported from countires with extensive forests or forests can be planted of the climate allows.	Aniceto Zaragoza	Oficemen	Spain
11535	36	39	36	39	Please, add a new sentence in line 39: "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. Construction industry does not rely on locally sourced materials only. Construction materials trade is currently wide spread. If timber is not available locally, it can be imported from countires with extensive forests or forests can be planted of the climate allows.	PEDRO MORA PERIS	UNIVERSITY	Spain
25051	36				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) There are many concerns regarding fire performance of CLT such as CLT itself contributing to fire load, early CLT delamination and early flashover as demonstrated in the research by Fire Protection Research Foundation, National Research Council Canada and the National Institute of Standards and Technology [https://www.nist.gov/el/fire-research-division-73300/national-fire-research-laboratory-73306/fire-safety-challenges-0], for example: •Test 1-5, with the smaller ventilation opening, more heat was trapped inside the compartment and, after the initial decay, a large re-flash occurred on the exposed wall with delamination of the second ply of the CLT, which caused the second flashover and induced the full involvement of the ceiling and all other walls in the fire…" •"In all the tests with the exposed CLT surface, flashover occurred earlier than in the baseline. The exposed CLTpanels translated to more fuel loads…" •"…all tests with exposed CLT surface either had a second flashover due to the re-flash on the exposed surface or an intense fire continuously without any decay period." •"The delamination of unprotected (exposed) CLT panels led to re-flare and/or re growth of the fire…" •"Heat delamination of the exposed CLT affected its fire performance as observed in this series of the large-scale compartment fire tests. Further study is necessary to quantify the contribution of the CLT structural members that do not exhibit heat delamination."	Accepted. We have added the following text to the section 8.3.2.1.: "In contrast to steel and concrete, timber is inflamable, but in large sections forms a self-protective charring layer when exposed to fire. Timber construction elements must therefore be sized to anticipate a potential charring layer that will protect the remaining 'cold wood' core. "	[Claude Lorea	GCCA	Belgium

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
3491	37	1	37	10	Figure 8.11 should be adapted, i.e. recalculate for concrete instead of cement. Cement is a concrete component. The three construction materials in this Figure 8.11 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	Accepted. The figure was adopted for concrete.	Miguel Angel Sanjuán	IECA	Spain
10381	37	1	37	10	Figure 8.11 should be adapted, i.e. recalculate for concrete instead of cement. Cement is a concrete component. The three construction materials in this Figure 8.11 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	Accepted. The figure was adopted for concrete.	Aniceto Zaragoza	Oficemen	Spain
11537	37	1	37	10	Figure 8.11 should be adapted, i.e. recalculate for concrete instead of cement. Cement is a concrete component. The three construction materials in this Figure 8.11 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	Accepted. The figure was adopted for concrete.	PEDRO MORA PERIS	UNIVERSITY	Spain
28337	37	1	37	12	I understand the choice of the y-axis boils down to the purpose of this figure but it would be good to add to the caption a brief explanation that materials should not be compared on a per-mass basis since we don't use identical masses of them in different structural systems. I also think a brief digression on potential issues linked to the availability of timber might be needed here to help contextualise a bit more, see e.g. https://doi.org/10.1016/j.oneear.2020.07.018	Accepted. We added this sentence to the figure caption: "Construction materials have radically different volume to weight ratios (upper panel), which should be accounted for in the estimations of their carbon storage and emissions." We added this statement "More detailed analysis of the timber demand, supply, and trade for different regions and countries is needed because future urban growth may lead to increased timber demand in regions with low forest cover (e.g., Pomponi et al.)" in the end of the 5th paragraph, Section 8.3.2.1.	Pomponi Francesco	Edinburgh Napier University	United Kingdom (of Great Britain and Northern Ireland)
60633	37	2	37	2	The physical dimensions inset is misleading. The density of steel is approx. 3 times greater than concrete. The figure as drawn represents only structural beams in buildings.	Accepted. This title has been changed and the figure redrawn.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
60635	37	2	37	2	Cement is not used as a construction material in isolation: it is the chemical binder in concrete, which includes in addition to cement sand and aggregate, too. The cement content of concrete is typically only 10-20% by volume.	Accepted. The figure was adopted for concrete.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
21809	37	13	37	13	About the section "8.3.3 Behavioural aspects" This section is very short and should be expanded. The term "influence" is worth discussing. The proposed reading seems particularly reductive in view of the numerous works that study the drivers of individual behaviours. Behaviour and practices of citizens should be better analysed, as they are an important lever for emission reduction. Conditions that favour behavioural chang should be clarified on the basis of existing literature. The issue of choices should be raised (voluntary change or forced change), for example based on the notion of capability.	Accepted. The section was expanded with additional literature, but still highly condensed out of necessity. Voluntary vs. mandated change briefly discussed. Issue of capability of great importance, and now briefly integrated into section.	Government of France	Ministère de la Transition écologique et solidaire	France
4535	37	13	37	27	Add reference : Pandey R.U, A Bharat ,Yogesh K. Garg (2013), Understanding Qualitative Conceptions of Livability: An Indian Perspective, International Journal of Research in Engineering and Technology, Vol. 2, no.-12, Dec. 2013, Page no. 374-380, ISSN: 2321– 730	Rejected. Reviewed, but not relevant.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4537	37	13	37	27	Add refernce: Pandey R.U, Bharat A , Garg Y (2014), Quantitative Approach for Understanding Perspectives on Livability in Indian Context, International Journal on Emerging Technologies, Vol. 5, Issue-1, Page no. 1-7, Jan. 2014, ISSN no. (print) : 0975 – 8364 ISSN no. (online) : 2249 – 3255	Rejected. Reviewed but not relevant.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
16439	37	13	37	27	The sub-chapter, bahavioural aspects under 8.3.3 describes urban emissions drvien by bahaviours of residents. Given its length and relevance, the section should be incorporated under 8.3.2 which discusses urban emissions and drivers.	Partially accepted. The section was expanded to better address the topic.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
70083	37	13	37	27	"Behavioural aspects" should be considered in more detail to emphasize a critical role of citizens' participation and its increasing imporatnce for climate action at local level and urban scale. Special attention should be made to green lifestyles and related 'practical' guidelines developed at multiple levels of governance towards a climate-neutral society. Examples are: 1. (International) Moving Towards a Climate Neutral UN: The UN system's footprint and efforts to reduce it (UNEP 2009) 2. (National) A CLIMATE-NEUTRAL LIFESTYLE: Consumers Lead the Way in Climate Protection (Federal Enviroment Agency/Germany 2013) 3. (Local) A sustainability guide to Copenhagen - 10 ways to act sustainably (Sourcehttps://www.visitcopenhagen.com/copenhagen/activities/green-sustainability-guide)	Partially accepted. The section was expanded to include more detail on the type of mechanisms that cities can use to prompt behavior change. The references provide are useful as examples of documents to engage citizens, but not incorporated in revisions since they are not peer reviewed.	Sang-Min Han	Hallym University	Republic of Korea
4253	37	14	37	14	supply chain should be supply [chains]	Accepted. This was corrected.	Lee White	Australian National University	Australia
21811	37	14	37	15	Behaviors do not come only from households, but also and mainly from the economic model, the aggressiveness of companies and marketing. Behavior changes are a whole linked to education, culture, inequlities in access to the vivienda, and many factors that come from mitigation policies.	Accepted. More detail added on the types of behavior changes and the array of ways that cities can support households to make behavior change (including feedback, financial policy, and changes in physical infrastructure).	Government of France	Ministère de la Transition écologique et solidaire	France
74937	37	14	37	27	Consider including consumpition based mechanisms-C40 Report	Accepted. Thank you for the suggestion. It was not clear that the C40 report is peer-reviewed; a citation was instead added from a publication tied to this report discussing consumption emissions from C-40 cities (Wiedman et al. 2020 https://onlinelibrary.wiley.com/doi/10.1111/jiec.13063)	Government of Kenya	Kenya Meteorological Service	Kenya
65115	37	16	37	17	The statement "Overall, changes in behaviour across all areas (transport, buildings, food) could reduce an individual's emissions by 10–36%." is not supported by a reference. Suggestion for a reference: IEA World Energy Outlook 2020 Figure on Impact of behaviour changes on CO2 emissions in the Net Zero Emissions by 2050 Case, 2021-2030 https://www.iea.org/reports/world-energy-outlook-2020/achieving-net-zero-emissions-by-2050?utm_content=buffer4f4f1&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer#abstract >	Accepted. Thank you for the IEA reference, the 2020 document has many useful projections; some of these have also been integrated. The original reference was dropped during editing and has been re-added (Van de Ven et a 2018).	Karishma Asarpota	ICLEI World Secretariat	Germany
4255	37	17	37	17	citation for Moran et al has (), not needed for this sentence	Accepted. This has been corrected.	Lee White	Australian National University	Australia
16465	37	17	37	17	Location of "(" in "(Moran et al. 2018b)" should be modified.	Accepted. This has been corrected.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21813	37	19	37	19	We suggest to write "Cities play a role (…)" instead of "Cities can play a role (…)"	Accepted. This edit has been made.	Government of France	Ministère de la Transition écologique et solidaire	France
15271	37	21	37	24	The statement that "China, where the total household carbon footprint for the country has increased by 19% between 2007 and 2012", which is not comprehensive, is biased and misleading since it gives only the amount of increase. The fact is that the level of carbon footprint of Chinese households is still lower than that of developed countries. It is suggested to give the absolute value of China's carbon footprint after 19% and that of carbon footprint of developed countries at the same stage.	Acceoted. This sentence has been removed during editing.	Government of China	China Meteorological Administration	China
10711	37	25	37	27	It is not easy to find examples where GHG emissions are influenced by behaviours due to city form or other urban issues; the reference (Stern et al 2016) is not of much help. Providing a couple of examples would be of value.	Accepted. More citations have been added; the section now describes: "Cities can support voluntary shift to walking, cycling, and transit instead of car use through changes to urban form such as transit oriented development (Kamruzzaman et al. 2015), increased density of form with co-location of activities (Ma et al. 2015; Ding et al. 2017; Masoumi 2019; Duranton and Turner 2018), and greater intersection density and street integration (Koohsari et al. 2016). Mechanisms such as providing financial incentives or disincentives for car use can also be effective in reducing emissions (Wynes et al. 2018)."	Philippe Waldteufel	CNRS	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
65215	37	25	37	27	The authors can point to research which states how real-time feedback with technology within homes leads to conservation efforts. Eg: Tiefenbeck, V., Wörner A., Schöb, S. et al. Real-time feedback promotes energy conservation in the absence of volunteer selection bias and monetary incentives. Nat Energy 4, 35–41 (2019). https://doi.org/10.1038/s41560-018-0282-1	Accepted. Thank you, this citation has been added, along with some others regarding feedback.	Karishma Asarpota	ICLEI World Secretariat	Germany
21815	37	27	37	27	We suggest to add : "(…). Improved technologies and devices are considered as strategic levers to foster behavioural change. However, resulting rebound effects have been pointed out as major trade-offs.	Rejected. There is a rich and growing literature on rebound effects. This section focuses primarily on what cities can do to support behavior change, of which technology change is a relatively small part. Due to space constraints, we do not delve into rebound effects as the nuance cannot be covered.	Government of France	Ministère de la Transition écologique et solidaire	France
30767	37	45	37	46	Higher production costs can also have a impact on final consumers. It should be modified as follows. [Emissions from the production of primary materials could reach zero or become negative with combinations of direct and indirect electrification, biofuels, CCU and CCS. This could involve higher production costs butand small increases in costs to final consumers.]	Rejected. Not clear which part of section 8.3.3 this is intended to address, although I agree broadly with the statement. This has not been integrated into 8.3.3.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
49613	38	1	42	24	Define the Shared Socioeconomic Pathways (SSPs) and their scenarios. This part is missing in the paragraph and needs to be briefly described. And another aspect is how SSPs combined with various Integrated Assessment Models (IAMs) to explore possible future pathways regarding socioeconomic and climate pathways.	Accepted. The scenarios in the SSP-RCP framework are better described in the context of urban areas.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
60637	38	1	45	7	Section 8.3.4 needs extensive reorganization. It reads like a list of studies, with too little synthesis.	Accepted. Text is inserted to represent the studies with more synthesis while the different scopes of analysis from sectors to urban infrastructure limit the possibility of direct numerical comparisons.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
60639	38	2	38	2	Language editing required.	Editorial suggestion is addressed.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
11917	38	2	38	3	The global comprehensive literature on baselines of GHG emissions... in this context it may be worthwhile to explore the global norms with the geo-contextual norms that may be in place across identical geographies as people in Asian countries can with stand high temperatures due to their DNA while the acceptable temperatures may prove to be lethal for nations like UK where excessive summer deaths is a concern; although UN offices operate at 28 degrees but not implemented such across all nations. With the lack of such ethical responsibility the impacts on climate change continue. Also it makes sense to review the baselines as need for cooling shall increase with time and with African and Asian countries being the game changer. Observation further there exists gaps in rating systems globally as the indigenous solutions/ systems often not a part of them in place thus when such data compiled shall be diverse form ground reality. Thus common framework needs to be in place with one section for indigenous solutions/ contextual attributes.	Rejected. The focus of the chapter does not allow elaborating on the details in this comment while context sensitivity is upheld in the chapter in other ways whenever possible.	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
30769	38	3	38	3	"phase out of the blast furnaces" is not always possible because there is a possibility that using CCUS together. It should be modified to "Conversion of steelmaking processes" It also entails the conversion of steelmaking processes and conversion of chemical industries to low GHG feedstocks and fuels.]	There are no matches to the indicated phrase and appears to be provided for a different chapter.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
64221	38	8	38	12	Figure 8.13 comes after the figure 8.12. Maybe they need to exchange Figure number	The two figures are no longer provided separately but synthesized in a single table with comparisons based on percentages.	Ova Candra Dewi	Universitas Indonesia	Indonesia
30771	38	13	38	14	Significant reductions in emissions through material efficiency are poorly grounded, so the expression should be modified. [Demand management, materials efficiency and more circular material flows may reduce the demand for virgin basic materials (e.g., steel, cement, aluminium, and plastics) and associated emissions, but are less explored and practically applied than other mitigation options (high confidence).]	Accepted. The suggested statement is modified and integrated into the text.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
4747	38	19	38	20	Figure 8.12 has multiple wedges of the same color, but the legend does not match the wedges. Perhaps an editorial error?	Taken into account. The figure is synthesized into a table for comparison and may not be used in the same way.	Sagar Sagar	GGGI	Canada
66923	38	19	38	20	What about heating and cooling (that is not electricity-based?) Not clear whether this is included in here.	Accepted. An urban energy system focus is given, including aspects of smart energy systems with smart thermal grids. The use of electricity based large scale heat pumps are also emphasized.	Lea Ranalder	REN21	France
10713	38	21	38	21	A few improvements would be welcome on figure 8.12 (and/or possibly its legend): while the chart includes 10 (perhaps 11) colour-coded zones, only 6 colour codes are identified on the included legend.	Taken into account. The figure is synthesized into a table for comparison and may not be used in the same way.	Philippe Waldteufel	CNRS	France
74939	38		40		Consider including emission trajectories from African cities- Durban, Accra	Rejected. The values are presented based on the regional classification that is used in AR6. In addition, the focus of the chapter does not allow providing emission trajectories for specific cities.	Government of Kenya	Kenya Meteorological Service	Kenya
27777	38		45		Section 8.3.4 on scenarios of future urbanisation to consider the 11 illustrative pathways presented in previous chapters of the SOD of WG III.	Partially accepted. The illustrative pathways are used to exemplify different approaches for climate mitigation. The elements are relevant for urban areas while the urban contribution is not directly quantified. Descriptive, qualitative links are provided to clarify this point.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52303	39	1	39	2	Figure 8.13 has not been discussed and or referred to in the text.	Figure 8.13 was referenced after (Creutzig et al. 2016a) in lines 7-8 (page 38) while prior to Figure 8.12.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
4961	40	2	40	2	Figure 8.14 is blurred	High quality resolution for all figures are ensured in the FGD.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
21817	41	7	41	7	About "[…] (a-g) […]": should be (d-g)	Editorial suggestion is addressed.	Government of France	Ministère de la Transition écologique et solidaire	France
30521	42	5	42	5	Figure 2 is not quoted in the text.	Line 5 as indicated in this comment appears to refer to Table 8.2 that had been cited in the caption of Figure 8.14 The relevant table is cited in the main text.	Lingna Liu	China University of Geosciences（Beijing）	China
16467	42	6	42	13	Main texts are located below the name of Table 8.2	Details that relate to Table 8.2 are provided in the table caption.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
6143	42	17	42	24	The population scenarios in SSPs are downscaled for over 20,000 cities in the following article. - Kii, M. Projecting future populations of urban agglomerations around the world and through the 21st century. npj Urban Sustain 1, 10 (2021). https://doi.org/10.1038/s42949-020-00007-5	Accepted. Existing data on urban emissions scenarios and population projections by SSP by urban agglomeration are provided as open data.	Masanobu Kii	Kagawa university	Japan
60641	43	10	44	16	This section repeats information already given in page 21.	Rejected. The two sections are on very different topics. Page 21 is about urgency to take action due to various aspects of urban development; pp 43-44 are strictly on projections of urban land expansion. I did not notice any overlap	Evyatar Erell	Ben-Gurion University of the Negev	Israel
6145	43	11	44	16	Following article estimates urban area growth and compares their result with the other researches. - Zhou, Y., Varquez, A. C. G. & Kanda, M. High-resolution global urban growth projection based on multiple applications of the SLEUTH urban growth model. Sc Data 6, 1–10 (2019).	Noted. The paper is somewhat pertinent, but presents data it a way that is inconsistent with the presentation of data in Figure 8.17 - and the other studies cited in this section. We contacted the author regarding their data and methodology and they proved unhelpful.	Masanobu Kii	Kagawa university	Japan
6983	43	22	23	22	Is this by 2050 or 2100?	2050 is correct.	Debra Roberts	EThekwini Municipality	South Africa
4963	43	22	43	22	the authors write "Huang et al. (2019) forecasted an increase of 78–171% over the urban footprint in 2015" in 2050 is missing within the sentence. It would read "Huang et al. (2019) forecasted an increase of 78–171% in 2050 over the urban footprint in 2015"	Partially accepted. Inserted "by 2050" to the sentence.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16469	43	23	43	23	check the tense of "will result in"	Taken into account and "will" is replaced with "is expected to"	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
18427	43	31	43	31	Should this be Eastern Europe and West Central Asia?	Accepted.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
21819	44	11	44	12	Agreed reasoning to be completed. It would be necessary to take into account on the one hand the consequences of the covid 19 effect and the digital revolution and on the other hand the fact that the needs for land for activities in developed countries are outsourced in developing countries and at low cost without it being possible to really study the impact of industrial relocation policies of activities.	Agreed. Added a paragraph to highlight that the forecasts do not take into account such factors.	Government of France	Ministère de la Transition écologique et solidaire	France
61425	45	9	45	10	Consider adding 'land use planning, and tenure security" as a potential emission mitigation factors. These factors affect overall rate of development by type and quality, where informal settlement mushroom, housing and livelihood options especially for the urban poor and uptake of smart technologies Tenure security influence access to key urban basic services including water, electricity, basic amenities and this determine their coping mechanisms e.g. use clean energy for clean cooking stoves etc.	Decline - Those points are right, but are too specific. We think that governance, instituional capacity, and/or urban form already include land use planning and tenure security.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
21821	45	10	45	10	"Urban mitigation options will necessarily vary and differ based on many factors, including type of governance, development level, institutional capacity, urban form, economic structure, and geography." What does this term "geography" mean? Very ambiguous.	Revised - "Geography" > "Human and Physical Geographies"	Government of France	Ministère de la Transition écologique et solidaire	France
21823	45	10	45	10	Please consider to add to this list also "culture" and "education"	Revised - "Geography" > "Human and Physical Geographies", which includes culture and education.	Government of France	Ministère de la Transition écologique et solidaire	France
30523	45	12	45	12	Figure 8.20 should be changed to figure 8.18.	Noted. We will recheck order for the FGD.	Lingna Liu	China University of Geosciences（Beijing）	China
16471	46	2	46	2	standalone?	Accept	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21825	46	3	46	4	Please note that there is a lots of repetitions, see 8.2	Decline	Government of France	Ministère de la Transition écologique et solidaire	France
10715	47	3	47	5	The legend for figure 8.18 is not adequate, as it explains only the r.h.s. subplot, which has no apparent link with the remaining part of the figure.	We are revising this entire figure.	Philippe Waldteufel	CNRS	France
21827	48	1	48	3	A repeat of 8.2. In the mitigation options, aspects of the city and its hinterland are missing, in particular in the relation of inflows or outflows and the management of natural resources. In the options, it is also important to consider climate change education, especially in university training, and in the training of town planners in southern countries.	See response to 16429	Government of France	Ministère de la Transition écologique et solidaire	France
71983	48	4	48	4	The highest potential for climate mitigation exists in urban areas of countries with emerging economies, but subnational actors as GCoM or C40 focus mostly on developed countries with potential less impact on climate mitigation. It would be nice to provide more examples of subnational actors focusing on emergin economies.	Agree with reviewer's comment here, so have edited the sentence to read, "Similar analysis by the urban networks C40 and GCoM examine the current and future GHG emissions on smaller subsets of global cities offering further insight on urban mitigation options but only for a sample of the global urban landscape and primarily focused on cities in the Global North (GCoM 2018, 2019; C40 Cities et al. 2019) with approaches for subnational actors in emerging economies still developing." Also in section 8.5.2, added, "For regional governments, the Under 2 Coalition, which includes more than 200 governments, including from the Global South"	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
56227	48	4	50	13	Cross-reference with Section 13.3, which covers actors, networks, and policies at the city and subnational level. It also assesses literature on issues that this section omits -- for example, institution building, a key requirement to address the political and institutional challenges posed by climate change, as well as the institutional factors constraining mitigation policies.	Added cross reference to Section 13.3. "See Section 13.3 for a more in-depth discussion of subnational climate actors, networks and mitigation policies."	Government of United States of America	U.S. Department of State	United States of America
65135	48	4	50	13	Since this section is about sub-national actors, there is very limited consideration beyond cities and regional governments of private actors role e.g. businesses as well as civil society organisations active at the urban level such as Climate Action Network (CAN)	Added cross reference to Section 4.2.3, which discusses the role of private actors, such as businesses.	Karishma Asarpota	ICLEI World Secretariat	Germany
61427	48	6	48	9	Good to define what 'subnational actors' in the context of urban/cities and their roles reflected. The role of city and local authorities need to be further emphasized; in addition to aother sub-national actor described in the UNEP report. See also articulation of the same in Pg 54 - line 26 to 32 with example on their roles in Japan and Australia. The New Urban Agenda also underscore the role of city and local authorities in urban development including climate action.	See response to comment 56227, which cross references Section 13.3 that has more detailed discussion about the role of urban areas/cities in climate mitigation. Also amended first sentence of Section 8.5.2 to define 'subnational actors' as city and regional governments. "A significant research question that has been paid more attention in both the scientific and policy communities is related to subnational actors' (i.e., city, state or regional government)"	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
61429	48	8	48	8	Need to include the Civil Society Organisation (CSOs) as subnational actors in emission reduction in addition to businesses and private sector. It is evident in t regport that the contribution of such actors is not documented or profiled in this report.	See response to comment 65135. Discussion of businesses, private sector and civil society contributions are discussed in Section 4.2.3.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
65137	48	18	48	21	It is not clear what the total mitigation contribution includes, would these climate policies also address industry and private consumption?	These studies primarily look at cities' direct contributions to greenhouse gas emissions, they do not explicitly evaluate private or individual consumption. Industry may be included in the scope since commercial buildings are in these analyses. Clarified in text: "These studies primarily assess urban subnational actors' mitigation policies over their direct emission sources and do not include consumption-based emissions or emissions occurring outside of their administrative boundary."	Karishma Asarpota	ICLEI World Secretariat	Germany
10717	49	2	49	2	Figure 8.19 is not a success. Why not try a table?	Figure is deleted.	Philippe Waldteufel	CNRS	France
65139	49	7	49	9	What about cases where cities are part of national policies? See for example the work of the NDC Partnership and country examples from UN-Habitat Enhancing Nationally Determined Contributions through Urban Climate Action https://unhabitat.org/sites/default/files/2020/06/ndc_guide_19062020.pdf	Chapter 13 discusses these potential overlaps and synergies. There isn't an obvious place for this discussion on the page the reviewer recommends since the focus is on urban emission sectors and not policies.	Karishma Asarpota	ICLEI World Secretariat	Germany
4965	49	11	49	11	° is missing	addressed	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
16473	49	11	49	11	degree is missing in front of "C"	addressed	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
10719	49	17	49	19	Is there a general consensus on this peremptory statement on an important issue? For example I would think that topography contributes significantly to shap and lock-in energy demand. References should be given anyway.	Declined, not clear what 'preemptory statement' reviewer is referred to	Philippe Waldteufel	CNRS	France
74941	49		49		Consider examples from global south cities and trajectories/pathways	Figure has been deleted	Government of Kenya	Kenya Meteorological Service	Kenya
49615	50	11	50	13	The statement need to be very specific in terms of which particular drivers are creating what kind of obsticles and what are their impacts .	Declined, the purpose of the figure and the accompanying text is to describe pathways for urban mitigation. It is not a drivers analysis or analysis of impacts.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65179	50	14	50	14	Comments on the entire chapter 8.4.2: Very superficial comments about 'integration' - the authors only mention that it is important and necessary and has huge potential, but no quantification of such potentials is provided. Perhaps a good reference to begin with: <Victoria, M., Zhu, K., Brown, T. et al. Early decarbonisation of the European energy system pays off. Nat Commun 11, 6223 (2020). https://doi.org/10.1038/s41467-020-20015-4 >. Expected talk about sector coupling under the 'integration' theme but did not find any, starting point can be : <https://doi.org/10.1016/j.enpol.2020.111913 >. Finally, this chapter is not really related to innovation - expected some examples of innovative products, services, business models for mitigation (eg - cities leading with green roofs etc., businesses working with cities with their innovative products etc). Perhaps the authors try to include such aspects more clearly/change the title.	Accepted. Integrating urban mitigation options and sector coupling is given additional content, including aspects of sector coupling and demand side flexibility.	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
61431	50	20	50	20	Ref. the first colum of Figure 8.20 - box that reads "Land formalization and land-based finance" need to consider use of the term "tenure security" with legal recognition of land rights and not really the 'formalization of land rights'. Tenure security including perception of how secure land tenure rights is key determining factor for investment and consumption patterns. Formalizing land rights is just but one way of securing tenure rights and this report should not be seen as promoting land formalization in urban areas/cities persee but underscroe the importance of securing land rights for all regardless of the governance and tenure regimes.	Declined-- too specific, we also revise Figure 8.20	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
65145	50	21	50	26	Figure 8.20: No reference in text, many intersectoral linkages not shown, unclear how to interpret the figure. Authors could provide an example to do so in the caption by highlighting the example with 'Transport' and how urban form and behavior changes are linked to lead to GHG emission reduction. Importantly, does not highlight well the knowledge gaps (consider modifying with symbols/colors to highlight such gaps?)	We decided to remove this figure. (8.20)	Karishma Asarpota	ICLEI World Secretariat	Germany
60643	50	28	50	28	Urban carbon lock-in is due to a very large extent byexisting infrastructure, perhaps more so than any of the levels referred to in the sentence.	Noted.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
65147	50	29	51	2	Integration of what strategies? - carbon mitigation/urban development/energy or land conservation? Perhaps a simple word here makes it clearer to the reader	Noted.	Karishma Asarpota	ICLEI World Secretariat	Germany
1765	50	34	50	34	Please add reference in the SRM table	Noted.	Md Arfan Uzzaman	FAO	Bangladesh
66925	52	1	52	1	First time net-zero is mentioned. Important to define this or remove this here and only refer to it when there is the space to define and elaborate on this in more detail. There is lots of buzz around this terminology so it's important to be consistent	Accepted.	Lea Ranalder	REN21	France
71985	52	1	52	1	Regarding the text "for cities to achieve net-zero". Theoretically for new cities it is possible to achieve net-zero, but what to do with existing already built cities which long ago used a lot of cement and concrete to built them? Can they become net-zero, if already have built carbon intensive buildings, roads and other infrastructure? Does this means that mitigation potential for existing cities can be implemented only for the activities related with further "Operation" of existing building stock and infrastruture, and that it is not possible for the cities with already build front cost carbon intensive infrastructure?	Noted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
65149	52	1	52	4	Will be helpful to mention here what 'quite different strategies' the authors refer to; this statement leaves the reader hanging. 'Conventional' actions aren't conventional for the general public, and it's difficult to imagine what other strategies can be. Perhaps the authors can point the reader to section 8.6?	Accepted.	Karishma Asarpota	ICLEI World Secretariat	Germany
5429	52	3	52	3	replace Renewables" by "low carbon sources"	Accepted	Michel SIMON	Retraité/ Pdt d'association	France
64337	52	3	52	4	Add '...resuing heat wasted by others...' to line 3. This promotes a more effective use of energy and aligns with circular economy principles and that of sustainability; its about resource-efficiency.	Noted	Peter North	Imperial College (part-time PhD student) /Calorem Ltd	United Kingdom (of Great Britain and Northern Ireland)
16475	52	6	52	7	not a full sentence	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21829	52	6	52	7	This sentence is very unclear as is the explanation of the pathways and levers in Figure 8.21 which are not readily evident.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
65153	52	6	52	7	The sentence "We posit that..." is incomplete.	Noted	Karishma Asarpota	ICLEI World Secretariat	Germany
61433	52	7	52	8	considser adding 'Land governance, land use planning" to .... land management; as these are roles within the jurisdiction of the city authorities - including land use planning, allocation and administration important to make it possible to achieve land based sequestration of carbon and waste managment. See alignment with text in Pg 63; line 11 - 13; Pg 63 - line 18-23; Pg 73 line 15-17.	Accepted	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
65151	52	7	52	8	This sentence feels out of place here - why talk about land-based sequestration all of a sudden? By now readers know that this is possible	Rejected	Karishma Asarpota	ICLEI World Secretariat	Germany
7933	52	9	52	12	Actually, it is the other way around. In my experience, when talking with urban stakeholders it was clear from the very beginning that their priorities were different (not GHG, but air pollution, traffic congestion, supply bills, job creation, quality of life, aesthetic, ...). Therefore a "good" decarbonisation strategy, is to involve the cities on their specific needs/ issues / priorities and co-find the synergies between the improvements against those key city-criteria and the GHG emissions reduction (seen as a side/positive effect). An engagement of local stakeholders/decision makers which focuses primarily on GHG (global) issues is likely not to be effective (and just a spot).	This comment was taken into account by placing a section on co-benefits for sustainable development early in the chapter in the SOD. Additional revision is provided for the specific lines indicated with referral.	Rocco De Miglio	Energy analyst and modeller	Italy
61437	52	9	52	12	The core benefits highlighted in this section have clear health and economic impacts; and which have stronger gender implicaitons especially for women towards inclusive economic, social wellbeing and ensuring no one is left behind. Evidence on impact on women health e.g. in meternal heath and incomes could be shared if possible towards demontrating the gender differentiation of such impacts. Also see pg 66 line 27, 28 with more similar informations on benefits/impacts.	This comment was taken into account by placing a section on co-benefits for sustainable development early in the chapter in the SOD. Additional revision is provided for the specific lines indicated with referral.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
65155	52	9	52	12	Restructuring: This statement might better suit the authors' point if moved to the end of the paragraph (line 20) because the domains and opportunities of mitigation are explained next	Accepted. The statements are restructured in the revised text.	Karishma Asarpota	ICLEI World Secretariat	Germany
65157	52	9	52	9	The previous paragraph (lines 1-8, page 52) talks about 'quite different strategies' but does not mention them. So the reader does not know what 'implement these opportunities' means here.	Accepted. Statements that are related to this context are elaborated in the revised text.	Karishma Asarpota	ICLEI World Secretariat	Germany
65159	53	1	53	9	Mitigation potential estimates are percentages based on what reference year of emissions? Are all percentages in different domains based on the same reference year or different? The question arises due to the figure being based on 2 references (Swilling et al 2018, Sethi et al. 2020). Please also improve the resolution of this figure	The relevant figure is revised for the FGD. Not all details that were included in the previous version are included.	Karishma Asarpota	ICLEI World Secretariat	Germany
71987	53	1	53	9	Then the "Priority" in almost all cells are at the max level, then it is not a selection criteria anymore, so for the reader it is difficult to take a decision. Please consider to have a different more broad scale from min to max levels. In this case no any min value exists at all and just few with average.	The relevant figure is revised for the FGD. Not all details that were included in the previous version are included.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
79285	53	1	54	20	Figure 8.22 does not mention pricing reforms, such as more efficient fuel, road and parking prices. Yet, higher fuel prices in Asian and European countries helps explain why residents drive, on average, 40-60% fewer annual kilometers than in the U.S. I suggest adding a section on pricing and economic incentives.	Noted	TODD LITMAN	Victoria Transport Policy Institute	Canada
6985	53	32	58	48	This contradicts the executive summary statement on page #5 lines 22-26.	Accepted. The content in Section 8.4.1 is streamlined with the chapter.	Debra Roberts	EThekwini Municipality	South Africa
9945	53				Figure 8.22 is unclear as well several other figures in the chapter	The relevant figure is revised for the FGD. Not all details that were included in the previous version are included.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
65217	53		53		The figure 8.22 is not readable due to its very low resolution. As it is cited several times in chapter 8, the authors should consider improving the quality of the image.	High quality resolution for all figures are ensured in the FGD.	Karishma Asarpota	ICLEI World Secretariat	Germany
65161	54	1	56	31	The entire box talks about subnational actors and their targets and the type of targets - does not contribute to this chapter, unless this is what the authors mean by innovation. I would rather shift this in between sections 8.4.1 and 8.4.2 . That way, the reader is already aware of the scale of subnational actors actively setting net-zero targets	Declined, the purpose of this box is to highlight the trend of subnational governments in pledging net-zero/decarbonization goals, which is an emerging policy trend that demonstrates ways in which subnational actors (i.e., cities and regional governments) are aligning their own mitigation goals with scientific trajectories for containing global temperature rise within 1.5 degrees C.	Karishma Asarpota	ICLEI World Secretariat	Germany
5431	54	2	54	3	Must be more specific. The 100% renewable target is valid for cities relying on hydro or geothermal power. With wind and solar, ir is unrealistic on tne basis of today technologies.	Declined, there is no specific mention of a 100% renewable target. Net-zero targets simply refer to goals cities set that balance the amount of emissions generated with those that are removed.	Michel SIMON	Retraité/ Pdt d'association	France
66929	54	2	54	32	Numbers are not consistent. In line 3 ff it refers to 823 cities and 101 regions, in line 20 to 826 cities and 103 regional governments.	Corrected and one of those references removed since the numbers/statement were duplicated between the first and second paragraphs	Lea Ranalder	REN21	France
14265	54	13	54	15	Based on a new REN21 report (forthcoming 18 March 2021 here:https://www.ren21.net/reports/cities-global-status-report/) by the end of 2020, at least 834 cities had renewable energy-specific targets for power, heating/cooling and transport, and of these, about 617 cities were pursuing 100% renewable energy targets.	Citation added to this sentence: "Moreover, thousands of urban areas have adopted renewable energy-specific targets for power, heating/cooling and transport and about 600 cities are pursuing 100% renewable energy targets (REN21 2020a; REN21 2021), with some cities already achieving it. "	Flávia Guerra	REN21	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
66927	54	13	54	15	There are now at over 1,300 cities with a renewable energy target and/or policy. This includes over 600 are for 100% renewable for at least one sector. REN21 (2021), Renewables in Cities 2021 Global Status Report (forthcoming on 18 March), www.ren21.net/cities or feel free to contact me directly for further info (lea.ranalder@ren21.net)	Citation added to this sentence: "Moreover, thousands of urban areas have adopted renewable energy-specific targets for power, heating/cooling and transport and about 600 cities are pursuing 100% renewable energy targets (REN21 2020a; REN21 2021), with some cities already achieving it. "	Lea Ranalder	REN21	France
65163	54	20	54	22	Same statement as in lines 1-5	Corrected	Karishma Asarpota	ICLEI World Secretariat	Germany
65165	54	22	54	24	It is helpful to add the reference year over here - emissions reduction of 80% to what reference year?	Added: "relative to their respective self-defined baseline"	Karishma Asarpota	ICLEI World Secretariat	Germany
65167	54	24	54	26	Again repeats from lines 1-5 with slightly different numbers; can be merged	Corrected	Karishma Asarpota	ICLEI World Secretariat	Germany
65169	54	26	54	26	"As these maps show,..." Can add the reference to Box 8.1, Figure 1 here	Box 8.1, Figure 1 has been deleted	Karishma Asarpota	ICLEI World Secretariat	Germany
65171	54	29	54	30	Might be helpful to the readers if this expense figure is mentioned also as a percentage of Japan's annual GDP	Added: " or 79 percent of its economy "	Karishma Asarpota	ICLEI World Secretariat	Germany
85823	54	30	54	32	Suggest correction: 'In Australia, all eight state-level governments have pledged to decarbonise by mid-century, which means that more than 99% of the country's population is covered by net-zero targets. In addition, the national government has stated its commitment to achieving net zero emissions as soon as possible, and preferably by 2050.' https://www.pm.gov.au/media/address-national-press-club-barton-act	partially accepted: "In Australia, although the national government as of 2020 had not set a national-level net-zero target, all eight state-level governments have pledged to decarbonise by mid-century, which means that more than 99 percent of the country's population is covered by net-zero targets."	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
21831	54				Box: There is some repetition of information between the two paragraphs of the Box albeit with slightly different figures which need to be checked and harmonised.	Corrected, see above response to comments 65167	Government of France	Ministère de la Transition écologique et solidaire	France
31043	55	0	55	0	Please ensure that the Northern Territories of Japan, namely Etorofu island, Kunashiri island, Shikotan island and the Habomai islands (See the map here: http://www.mofa.go.jp/territory/index.html), are shown as part of Japan (described in the color of Japan), not as part of Russia in the Box 8.1, Figure 1. The Northern Territories have remained occupied by Russia without any legal grounds up until the present day. The map not only may cause misunderstanding among the international community but may also give a chance to Russia to take advantage of the map to assert its occupation, which does not have any legal grounds, as a fait accompli. For the reasons above, it is neccessary to modify the display of the Northern Territories on the map in the above mentioned Figure in an appropriate manner.	Box 8.1, Figure 1 has been deleted	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
15273	55	1	55	1	In Figure 1 of Table 8.1, the background colors of the maps of Taiwan Province and Chinese mainland are inconsistent. The Dotted Line of South China Sea, Nanhai Zhudao, Diaoyu Dao and its affiliated islands of China are missing. It is suggested to use a color block map, delete the national boundary lines, and mark the island points.	Box 8.1, Figure 1 has been deleted	Government of China	China Meteorological Administration	China
66931	55	1	55	1	It would be interesting to see a split up between the type of sub-national actors. E.g. Only few German cities have net-zero targets but several regions.	Box 8.1, Figure 1 has been deleted	Lea Ranalder	REN21	France
65173	55	1	55	4	Perhaps this figure can also represent countries which have national level targets (eg - a dot to highlight that country?)	Box 8.1, Figure 1 has been deleted	Karishma Asarpota	ICLEI World Secretariat	Germany
6987	55	3	55	3	Box 8.1, Figure 1 is very useful. However, it might be important to consider extending the discussion beyond commitment to net-zero to assessing the progress, opportunities, and barriers in meeting the commitment.	Box 8.1, Figure 1 has been deleted	Debra Roberts	EThekwini Municipality	South Africa
3499	55	9	55	9	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	wrong page number and section	Miguel Angel Sanjuán	IECA	Spain
10389	55	9	55	9	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	same comment as 3499	Aniceto Zaragoza	Oficemen	Spain
11545	55	9	55	9	It is suggesred to add the following reference after "cement also uptake carbon through the process of carbonation": Sanjuán, M.A.; Argiz, C.; Mora, P.; Zaragoza, A. Carbon Dioxide Uptake in the Roadmap 2050 of the Spanish Cement Industry. Energies 2020, 13, 3452. https://doi.org/10.3390/en13133452	same comment as 3499 and 10389	PEDRO MORA PERIS	UNIVERSITY	Spain
61435	55	10	55	11	There is need to consider adding 'financing' for climate mitigation in cities/urban areas as an enabling factor for accelerating cities climate action, mitigation. Otherwise the term capacity can be further elaborated to include financing. I would like to imagine this has already been factored in the chapter 15, but good to make reference/include it here as well.	added: "Institutional capacity, governance, financing, and cross-sector coordination is crucial for enabling and accelerating urban actions for climate neutrality."	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
66933	56	1	56	1	Why is natural gas included as a mitigation strategy for sub-national actors? This should not be counted as a emission reduction strategy and will certainly create more of the lock-ins that are being decribed earlier in the chapter! Also I suggest to clarify what is meant with the category "fuel" and "buildings" as this sounds extremely vague.	Agree with the reviewer re: natural gas, but these are strategies that subnational urban actors have themselves identified as climate mitigation strategies, these are not strategies that the authors have determined. The labels "fuel" and "buildings" are general labels applied to strategies identified and not meant to be overly detailed since there is a lot of diversity in how cities speak to these themes. See Hsu and Rauber (2021) for further explanation.	Lea Ranalder	REN21	France
5433	56	18	56	18	replace Renewables" by "low carbon sources"	Rejected since these are determined from the text of the strategy documents themselves.	Michel SIMON	Retraité/ Pdt d'association	France
21833	56	21	56	24	Education and civic engagement are the most important elements for the success of mitigation policies. This aspect only appears in this page, when it should be present throughout the report. One of the great challenges of mitigation is the mobilization of populations so that the policies apply.	Agreed and noted.	Government of France	Ministère de la Transition écologique et solidaire	France
21835	56	22	56	24	"Education and awareness building campaigns that engage citizens to change consumption patterns are key strategies, including "soft mobility" campaigns to encourage citizens to increase usage of public transportation" Supply is also important and is very often ignored. The change in practice involves both a transformation of demand and supply. Often, individuals and households are forced to maintain an unsustainable practice because of a lack of alternatives.	Agreed and noted.	Government of France	Ministère de la Transition écologique et solidaire	France
46939	56	24	56	36	cities that were signatories to the first phase of covenant of mayors with a 2020 target reported mitigation actions through a specific platform "MyCovenant" indicating for each reported action the potential of Co2 reduction, sectors and the policy instrument selecting among the following for buildings (Awareness raising / training Energy management, Energy certification / labelling, Energy suppliers obligations, Energy / carbon taxes Grants and subsidies, Third party financing. PPP, Public procurement, Building standards, Land use planning regulation), for transport (Awareness raising/training, Integrated ticketing and charging Grants and subsidies, Road pricing, Land use planning regulation, Transport / mobility planning regulation Public procurement, Voluntary agreements with stakeholders)	Noted.	Valentina Palermo	JRC	Italy
65181	57	2	57	5	The term 'complete urban advantage' is very vague, what does complete mean in this context? Perhaps the authors can consider removing the word 'complete'	Accepted. The sentence is clarified.	Karishma Asarpota	ICLEI World Secretariat	Germany
21837	57	3	57	4	The definitions of "ressource-eficient" and "moderate action", in this paragraph are not clear. The paragraphs before described in great details what could be done in cities, so it difficult to understand what exactly is presented in this paragraph. This paragraph could therefore be detailed a little bit more, in relation with the paragraphs above.	Accepted. The paragraph is clarified.	Government of France	Ministère de la Transition écologique et solidaire	France
73091	57	3	57	4	The definitions of "ressource-eficient" and "moderate action", in this paragraph are not clear. The paragraphs before described in great details what could be done in cities, so it difficult to understand what exactly is presented in this paragraph. This paragraph could therefore be detailed a little bit more, in relation with the paragraphs above.	Accepted. The paragraph is clarified.	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
21839	57	4	57	4	The phrase "their complete urban advantage" is unclear and might be explained.	Accepted. The sentence is clarified.	Government of France	Ministère de la Transition écologique et solidaire	France
65175	57	9	57	19	Table 8.3: not much to do with integration and innovation; rather about emissions from different scenarios. This figure may be better suited in section 8.3.4 for better flow and reader experience	Taken into account. The content of Table 8.3 is represented in section 8.3.4.	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
65177	57	20	58	13	Figure 8.23: not much to do with integration and innovation; rather about emissions from different scenarios. This figure may be better suited in section 8.3.4 for better flow and reader experience	Taken into account. The content of Figure 8.23 is represented in section 8.3.4.	Karishma Asarpota	ICLEI World Secretariat	Germany
1441	57		57		figure 8.23 has low quality	High quality resolution for all figures are ensured in the FGD.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
3199	57		57		figure 8.23 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	High quality resolution for all figures are ensured in the FGD.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
43437	57		57		figure 8.23 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	High quality resolution for all figures are ensured in the FGD.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50343	57		57		figure 8.23 has low quality. It should be noted that there are low quality figures in the IPCC Chapters as usual.	High quality resolution for all figures are ensured in the FGD.	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
21841	58	15	58	15	Section 8.4.2.1 has no following section, inconsistency in title numbering	Reject. Chapter uses this numbering system, see Sect. 8.3.1.1, which has no following section.	Government of France	Ministère de la Transition écologique et solidaire	France
21843	58	16	58	18	This paragraph does not define the lock-ins as the paragraphs above do ("Urban carbon lock-in occurs on different levels: through institutions, technology and behaviour"). This section should be made coherent with what is said at the beginning of section 8.4.2	Accepted. Changed the section heading to "Avoiding Carbon Lock-in: Cities within a Multi-Government Framework." This should clarify that the section is focused on the increased complexity of urban carbon lock-ins which are enmeshed in a multi-government framework.	Government of France	Ministère de la Transition écologique et solidaire	France
73093	58	16	58	18	This paragraph does not define the lock-ins as the paragraphs above do ("Urban carbon lock-in occurs on different levels: through institutions, technology and behaviour"). This section should be made coherent with what is said at the beginning of section 8.4.2	Partially Accepted. Changed the section heading to "Avoiding Carbon Lock-in: Cities within a Multi-Government Framework." This should clarify that the section is focused on the increased complexity of urban carbon lock-ins which are enmeshed in a multi-government framework.	Vincent Viguie	CIRED, Ecole des Ponts ParisTech	France
49617	58	16	58	43	The Urban government body functioning has been put systematically and its role in urban mitigation process has been briefed.	Thank you!	Satyaprakas Das Das	Manipal Academy of Higher Education	India
21845	58	18	58	21	Please consider also a transformation of higher education in terms of training in urbanism, architecture and engineering	Reject. Good comment, but given the focus on how the carbon lock-in of cities is made more difficult by their multi-government context not sure whether adding a paragraph here on the need for transformation of higher ed training in urbanism, archicture and engineering would be be the right place. Will add a sentence to the sectio on future urban settlements, 8.6.3	Government of France	Ministère de la Transition écologique et solidaire	France
10721	58	21	58	42	lines 37-42 are exact copies (barring a comma) of lines 21-27.	Reject. Don't see this.	Philippe Waldteufel	CNRS	France
21847	58	27	58	28	In most countries, urban governments have the power to regulate or standardize, but often lack the technical capacity.	Accept. Added the following sentence: " These local powers, however, are often constrained by the lack of local capacity to plan and implement carbon mitigation options (Romero-Lankao et al. 2018).	Government of France	Ministère de la Transition écologique et solidaire	France
21849	58	27	58	28	We are today in a current of thought which goes beyond simple governance (quite theoretical), to speak of "policy capacity". Wu, X., Ramesh, A. & M. Howlett, 2015, Policy capacity: A conceptual framework for understanding policy competences and capabilities. Policy and Society, 34(3-4), 165-171. https://doi.org/10.1016/j.polsoc.2015.09.001 There is a lot of literature on policy capacity o governance capacity. For example: Förster, J.J., Downsborough, L., Biber-Freudenberger, L. et al. Exploring criteria for transformative policy capacity in the context of South Africa's biodiversity economy. Policy Sci 54, 209–237 (2021). https://doi.org/10.1007/s11077-020-09385-0 Arthur Lima Marino, Gisele de Lorena Diniz Chaves, Jorge Luiz dos Santos Junior, 2018, Do Brazilian municipalities have the technical capacity to implement solid waste management at the local level?, Journal of Cleaner Production,188, 378-386. https://doi.org/10.1016/j.jclepro.2018.03.311.	Partially accepted. Added "policy" to the senstence and one of the references supplied. The development or articulation of the policy capacity concept would be better developed in the section on governance.	Government of France	Ministère de la Transition écologique et solidaire	France
64339	58	29	58	30	Zoning can also include the results of energy planning and prioritising infrastructure such as heat networks.	Accepted. Added another clause to the sentence.	Peter North	Imperial College (part-time PhD student) /Calorem Ltd	United Kingdom (of Great Britain and Northern Ireland)
4079	58	32	58	43	There is another option, applied in Mauritius through a 'National Regeneration Programme', where private investment is channelled in urban developments that align with the objectives defined by government; including sustainability dimensions. The below paragraph is thus proposed (after line 43): A 'National Regeneration Programme' adopted in Mauritius addresses the issue of reducing public expenditure by encouraging, through the use of fiscal mechanisms, private sector investment in urban development, while adhering to sustainability dimensions. Similar programs could be beneficial to other contexts, reinforcing the need for a transdisciplinary approach to urban decarbonisation. REFS: http://edbmauritius.com/media/2120/national-regeneration-programme-nrp.pdf https://www.mdpi.com/2624-6511/1/1/4	Reject. Not sure what section this comment refers to--8.4.3?	Zaheer Allam	Deakin University	Mauritius
66935	58	44	58	44	The heading "reducing urban energy use" does not fit for the sub-categories that follow. E.g. Electrification is not a direct method to reduce energy use. Sugge to change the title to something more appropriate, e.g. "shifting and reducing urban energy use" . Also the sub-categories are not exhaustive and it jumps between the different sectors. I suggest to split this up in buildings and transport. 1. In buildings part the different options to reduce energy demand can be discussed (renovation, passive houses, insulation, etc) as well as the options availat to either shift to renewable stand-alone systems (electrification of heating and cooling or stand-alone renewables) or shifting infrastructure (district energy) and fostering renewable integration there. 2. In the transport part you can then discuss the avoid-shift-improve system. How cities can reduce energy demand by improving walkability, bikeability of cities, scale up public transport and shift public transport to renewable energy (biofuels) or enable the electrification of public transport, private transport and create the distribution infrastructure to make this happen (charging stations) We have tons of examples of cities that have done this in the REN21 REnewables in Cities Global Status Report.	Accepted	Lea Ranalder	REN21	France
66937	58	45	59	3	This paragraph would benefit from a reflection of the sectoral split up of energy use. Heating and cooling account for over around 51% of energ use, transport for over 30% and the power sector for only 17%. Renewables are strong in the power sector where they account for approximately 26% but lagging behind in heating and cooling and transport - where they account for 10% and 3% respectively. (see REN21, Renewables 2020 Global Status Report, www.ren21.net/gsr or feel free to reach out to me directly at lea.ranalder@ren21.net) This is also an opportunity to highlight the role of cities in reducing energy demand and shifting to renewables in heating and cooling and transport sectors. 50% of energy demand from heating and cooling comes from buildings and most buildings are in and around urban areas. Heating and cooling demand is also very decentralised and thus needs local solutions. (see REN21 Renewables in Cities 2021 Global Status REport, www.ren21.net/cities or feel free to reach out to me directly at lea.ranalder@ren21.net)	Partially accepted. The chapter aims to uphold an urban framing that trascends sectors while the heating, cooling and transport demands of cities are further emphasized in the text.	Lea Ranalder	REN21	France
71989	58	47	58	47	Why only Electrification? The Energy can be described as energy from electricity and energy from thermal sources (thermal energy). Waste heat energy from Industry, Data Centers, utilisation of Solar Thermal energy and etc. every day takes bigger and more important role in clean energy transition process. From th report text it seems that the end users with District Heating and Cooling will be pushed to electrical heating. Please include Thermal Energy as energy source or put a little bit clarification on this for the reader.	Accepted. Decarbonizing heating and cooling is better emphasized that also addresses the use of waste heat, solar thermal and electrification with heat pumps at the urban level.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
14267	58	48	59	1	This is the only place where bioenergy is mentioned in the context of transport fuels in this chapter, there is no mention of biofuels at all. Should "bioenergy" then be replaced with "sustainable biofuels"? I understand that electrification is a more attractive option for urban transport systems, but biofuels still account for most of the current share of renewables used in transport (over 3%). Also, biofuels -- especially locally produced biofuels -- still play a role in some cities' transport decarbonisation plans.	Taken into account. Referral to Chapter 10 on Transport is also provided since biofuels in transport is assessed under 10.3.3.	Flávia Guerra	REN21	Germany
14269	59	1	59	1	Hydrogen is also scarcely mentioned in this chapter, although interest in producing hydrogen using renewable electricity for use in transport (and other sector in cities has been rising, especially in Asia. Should there be a specific mention to renewable hydrogen here?	Taken into account. Sector coupling options with green hydrogen is relevant for smart energy systems.	Flávia Guerra	REN21	Germany
64341	59	1	59	2	If my comments on chapter 6 are incorporated on reusing waste heat, (5) should include, after '...efficient...', the words '...and effective...'	The use of "effective" is taken into account. The reuse of waste heat in urban areas is better represented.	Peter North	Imperial College (part-time PhD student) /Calorem Ltd	United Kingdom (of Great Britain and Northern Ireland)
71991	59	4	59	4	If we have a chapter on Electrification, we miss a chapter on Thermal "Energyfication" as District Energy - District Heating and District Cooling systems, integration of RE and waste energy, integration of electricity into the district heating network then the electricity surplus from Solar or Wind is too big and etc	District heating and cooling systems are closely related with urban land use and spatial planning and were represented in the next heading. This is now clarified. PV just one form of electrification	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
83677	59	4	61	18	it may be worth mentioning in this most important section, that PV-based solutions may dominate urban electrification, as this is the main scalable urban solution. Keiner et al. (https://www.sciencedirect.com/science/article/pii/S0038092X19304281) have shown for all countries globally the high value of residential PV solutions in combination with electricity based heat (where required), battery-electric vehicles and balanced with batteries for least cost solutions. In addition Bogdanov et al. (https://www.nature.com/articles/s41467-019-08855-1) has shown that PV prosumer based solutions (of course dominat in urban areas) are a most important part of highly sustainable and zero CO2 emission power systems. Bogdanov et al. is the only global transition study explicitly modeling urban PV prosumer systems.	The role of prosumers in the urban context is better emphasized.	Christian Breyer	LUT University	Finland
66941	59	4	62	35	The linking of electrification with renewable energy uptake is not strong enough. Suggest to discuss 1) which sectors can be electrified and how across the building and transport sectors. 2) how cities can scale up renewable power to meet the increasing demand (e.g. on-site generation, power purchase agreements, partnerships with stakeholders, etc...) See REN21 Renewables in Cities 2021 Global Status Report for a discussion on renewable energy consumption, procurement and generation in cities	Accepted. The role of cities in upscaling renewable power is emphasized in the revised section.	Lea Ranalder	REN21	France
71993	59	5	59	5	Why only on Electrification? Why missing Thermal Energy? Thousands of literature sources about Energy focusing on Thermal Energy systems.	Taken into account	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
71995	59	7	59	8	Not clear the connection between Electrification and Heating Cooling services. Needs more clarification on this.	Added another reference to electrification incl all electric devices such as vehicles, stoves, and heat pumps.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
14271	59	12	59	14	Might be worth mentioning that at least 67 cities worldwide had targets for electric vehicles by the end of 2020; and although only 46% of these cities also had a city-wide renewable electricity target, almost all of the cities with EV targets are bound by renewable electricity targets implemented at the national-level. Such targets (especially when complemented by supportive policies, e.g. subsidies) are key to promote the decarbonisation not only of municipal fleets (buses, refuse collection trucks, police vehicles, etc.) but also of private vehicles and fleets; they send a strong signal to industries and service providers, and help to inform overall procurement processes that require clean services and products. Source: forthcoming REN21 report on 18 March 2021, available here: https://www.ren21.net/reports/cities-global-status-report/	Added reference	Flávia Guerra	REN21	Germany
5435	59	13	59	13	replace Renewables" by "low carbon sources"	Rejected. The use of renewables in this context is in agreement with the scope of the line of sight and cannot be further generalized to low carbon sources.	Michel SIMON	Retraité/ Pdt d'association	France
49619	59	15	59	16	Aspects of urban systems adressed by energy policies can be mentioned and explained for more clarity.	Accepted.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
21851	59	15	59	27	It is not very clear how these two paragraphs relate to this section on Electrification. Can the link be made more explicit or the paragraphs moved?	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
64343	59	17	59	20	Consider adding '...reusing heat...' in the context of urban systems. Dobbelsteen has several papers on the principles.	Partially accepted. Relevant literature on reusing heat in the urban context is better represented.	Peter North	Imperial College (part-time PhD student) /Calorem Ltd	United Kingdom (of Great Britain and Northern Ireland)
71997	59	17	59	20	Not clear how decentralisation is related with buildings efficiency and what is "decentralised systems for" ... energy efficiency in buildings". Energy production decentralisation focuses on the diversification of energy production points in different locations, but the overall "Building Efficiency" level and energy consumption level at he building will remain the same. Building energy efficiency can be increased by improving building Passive (walls, partitions, roof, etc.) or/and Active (engineering systems within a building) systems, but not related with decentralisation.	Taken into account. Relevant content has been substantially revised.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
66939	59	21	59	42	Paragraph included twice	Deleted	Lea Ranalder	REN21	France
65183	59	24	59	27	Unclear, consider sentence restructuring - do the authors mean increase in net present power (kW) or net present power costs?	The statement covers net present costs for power and transportation.	Karishma Asarpota	ICLEI World Secretariat	Germany
21853	59	37	59	42	This paragraph is a repetition from that just above Lines 21-27.	Accepted. The dublicate paragraph in the draft is deleted.	Government of France	Ministère de la Transition écologique et solidaire	France
60645	59	37	59	42	This paragraph is identical to a previous one in the same page, on lines 21-27.	Accepted. The dublicate paragraph in the draft is deleted.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
65185	59	37	59	42	Repeat from lines 21-27	Accepted. The dublicate paragraph in the draft is deleted.	Karishma Asarpota	ICLEI World Secretariat	Germany
71999	59	44	59	45	Very big part of energy consumed in buildings is for heating, domestic hot water and cooling, but it is not seen from the text here as the main focus is on electricity.	Correct, no change needed. The first sentence discussed the role electricity will need to play in 1.5 deg C scenarios, which means much of building energy consumption would need to be electrified. The second sentence just refers to how much of current global energy consumption is from transportation and buildings.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74943	59		60		Consider including Kenya's renewable energy mix >80% example	Taken into account. The role of urban areas in supporting high penetration of renewable energy in different regions of the world is clarified.	Government of Kenya	Kenya Meteorological Service	Kenya
72001	60	1	60	1	Does "Electrification of urban buildings" means switching from thermal energy as district heating / cooling to electrical heating? CHP plants efficiency just for electricity is only ~30%, and with thermal energy utilisation increases to 75-85% or more. Therefore not clear what kind of strategy there will be during "Electrification".	Taken into account. The different strategies for building clusters and districts are clarified. Electrification is the shifting away from fossil fuel-consuming devices to electrical ones, as defined in the beginning of the section	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
72003	60	5	60	7	"Electrification of buildings": Nothing was said about that the energy efficiency of individual equipment/device increases, but the number of used equipment/devices increases, so the overall energy consumption per the same apartment 10 years ago and now did not change a lot or even increased. Also a focus should be placed on the life cycle of used devices, then the manufactures encourage the consumers instead of to repair to buy a new device (hom appliances, washing machines, etc.).	This section is focused on electrification, but added another mention of the importance of decarb of power sector and EE. The aim of the section has not been to focus on electrification of thermal end uses in buildings onl that is also assessed in Chapter 9 on Buildings. Urban infrastructure related aspects are now the main focus	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
66943	60	11	60	22	The electric vehicle market is developing very quickly so it is important to include 2020 numbers there. See IEA EV report. Also it is not clear about what kind of EV deployment you are speaking about. Electric cars, buses, two and threewheelers? Depending on the unit of analysis also the Suggest to be specific. E.g. of the more than 514,000 electric buses more than 505,000 are in China. Regardless, e.g. the market in Latin America is expanding quickly, in particular driven by city governments.	Partially accepted. Updated with IEA EV 2021 Outlook numbers. Clarification on electric cars versus electric buses is provided while numbers on electric mobility are not provided.	Lea Ranalder	REN21	France
72005	60	16	60	16	Electric vehicles. Not always individual one person electric vehicle as electric scooter brings positive effects. These vehicles become very close to the consumer so residents instead of walking 1-2-3 km distance take/rent an electric scooter, what decreases walking distance (mainly this reffer to a short walking distance, also not sure residents use scooters for long 10-15 km distances) and increases overall driving and extra CO2 comparing to the situation before scooters/individual electric vehicles.	Taken into account. We do metion electric micro-mobility.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21855	60	22	60	22	Please consider to add : " (...). However, the large-scale deployment of electric vehicle should not be implemented without taking into account the other urba effects and damages of automobile mobility, i.e. consumption of space for driving and parking, residual air pollution associated with degradation, and accidents. "	Good point, language added	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
65187	60	23	60	28	For cooking and hot water becoming electric - the 5 lines are too short, perhaps the authors can include some literature about tradeoffs between gas/electric stoves (energy use, infrastructure needed, emissions, particulate matter). Further, some numbers on water heating energy/emissions? (it is the second largest section of energy consumption in a home; REF = chapter 1 Buildings Energy Data Handbook, available <https://openei.org/doe-opendata/dataset/buildings-energy-data-book/resource/3edf59d2-32be-458b-bd4c-796b3e14bc65 >)	Rejected. The aim of the section is not to focus on building level solutions. Clean household stoves are emphasized in Chapter 9 on Buildings.	Karishma Asarpota	ICLEI World Secretariat	Germany
4257	60	25	60	25	solar water heating is typically thermal (heat from sun directly heats the water), not electric, so is not a good indicator of electrification	No it is an electrification technology., i.e. a shift from fossil fuel to electric sources. See definition of electrification early in the section. No change necessary.	Lee White	Australian National University	Australia
21857	60	29	60	30	This point about mitigation potential depending on carbon intensity of the grid is absolutely fundamental and should be made at the start of the section on Electrification.	Accepted. Moved up earlier in the section	Government of France	Ministère de la Transition écologique et solidaire	France
65189	60	29	60	30	This is a very important point, could be moved further up this section (perhaps before line 37, page 59)	Accepted. Moved up earlier in the section	Karishma Asarpota	ICLEI World Secretariat	Germany
8793	60	30	60	32	The threshold value of 600 tCO2-eq/GWh would result from an electricity supply system with high share of fossil fuels. Please consider a more ambitious target of 100 tCO2-eq/GWh and refer to https://doi.org/10.1016/j.eist.2019.11.007 for UK climate target.	The suggested reference is relevant while any static value is no longer provided considering temporal changes towards net-zero targets.	Görkem Güngör	Middle East Technical University	Turkey
72007	60	31	60	31	The risk exists in putting everything on the electricity grid. As the fuel consumption should be diversified, the same energy supply should be diversified, dividing the energy consumption share between electrical energy, thermal energy (district heating and hot water), cooling energy.	Accepted. The framing of the section is updated. Added new para in the electrification section on this point	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
72009	60	41	60	44	There was a study showing, how much CO2 consumption increases during online calls with video and without, therefore the impact of consumed data volume on climate is obvious. Today we see too many advertisements on the computer and mobile screen as pictures and as pop up videos. In any case for everything pays end user, so these advertisements are not "free" and not climate friendly. Therefore the advertised information, reaching only small amount of audience, potentially can be put under "Efficiency" standards also.	The comment is a general suggestion. There is a box on Digitalization (Cross-Chapter Box 8) that also addresses trade-offs of increasing data volume.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
66945	61	5	61	18	Suggest to reflect on the policies that city governments can do to increase electrification in their cities,e .g. include the bans on fossil fuels, financial incentives to shift from fossil fuel individual heating to heat pumps, etc	Accepted. Added some language.	Lea Ranalder	REN21	France
21859	61	6	61	6	About "[…] policy architect (e.g., transit planning) […]": please consider also by an urbanism of compactness and not of density. Large buildings are large consumers of energy and produce little, while small, compact sets can be energy self-sufficient.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
72011	61	20	61	20	"Smart Grids" are not only about electricity - there are Smart Thermal Grids and Smart Electricity Grids. The overall trends goes not to one electricity or thermal energy system, but to the overall "Energy System", integrating all energy sources and distribution systems from electricity to the heating/cooling. Therefore I recommend to make a broader description of these "Smart Grids" as this is not only about electricity.	Caveatted that we are mostly talking about electricity grids here. But, mention thermal grids as one type of smart energy system	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21861	61	20	61	22	This definition is questionable: 1) A Smart Grid can also concern a heating or gas network. There are many achievements in France and in Europe: intelligent heating networks in different territories (Ginko eco-district in Bordeaux, smart grid meridia in Nice, European project Celsius Smart Cities for intelligent heating and cooling networks in Europe,). The deployment by GRDF of intelligent sensors on its gas network; 2) A Smart Grid can also be in the complementarity of energies. There are examples in France, such as the double thermal and electrical grid in Nanterre, power to gas, etc. So we would have to remove the reference to electricity to indicate that the smart grid concerns electricity, but also gas, heat and cold, and multi-energy.	Caveatted that we are mostly talking about electricity grids here. But, mention thermal grids as one type of smart energy system	Government of France	Ministère de la Transition écologique et solidaire	France
72013	61	24	61	24	Nowadays Consumers definition is expanded to Prosumers definition.	Added	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
75601	61	36	61	38	Add "fractured fiscal authority" in the sentence … such as weak and unreliable existing infrastructure, fractured fiscal authority,… Ref Cirolia, L. R. (2020). Fractured fiscal authority and fragmented infrastructures: Financing sustainable urban development in Sub-Saharan Africa. Habitat International, 104, 102233. doi:10.1016/j.habitatint.2020.102233	Added	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
16477	61	44	61	44	remove "s" in "ranges"	Corrected	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
66947	62	1	61	16	Prosumers are indeed often using solar PV but not exclusively, there are also examples with other technologies, particular if you also include community energy projects	No change, sentence does not say prosumers are limited to solar	Lea Ranalder	REN21	France
6989	62	1	62	16	A caveat is needed here that this sort of innovation needs to be backed up by an enabling regulatory environment.	Accepted. Discussion included in FGD.	Debra Roberts	EThekwini Municipality	South Africa
4259	62	4	62	5	this sentence suggests that two-way power flows cannot happen without a smart grid or P2P - that isn't correct, old grids can handle some two-way flows, just not as well, and not in support of P2P	Accepted. Language removed.	Lee White	Australian National University	Australia
65191	62	4	62	5	P2P trading is buy/sell electricity with neighbour households/businesses, not the grid (the grid is an enabler) - sentence structure needs revision for better clarity. For instance: "This interdependence needs a smart grid which can enable two-way power flows to instantaneously help local households/businesses a the grid, relying on the concept of peer-to-peer trading (P2P)"	Accepted. Language removed.	Karishma Asarpota	ICLEI World Secretariat	Germany
65193	62	7	62	8	Would be helpful to also give some real world examples here. Policy = ZEV in Switzerland - link to explanation <https://www.vese.ch/evg-2/> ; Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast). Utility example: EWZ in Zurich offers a product for this <https://www.ewz.ch/de/geschaeftskunden/solarenergie/solarenergie-fuer-eigentuemer/eigenverbrauch-ewz-solarsplit.html>	Noted. We are limited for space.	Karishma Asarpota	ICLEI World Secretariat	Germany
79273	62	12	65	18	Although disaggregated analysis, such as Stevens (2017) is useful for some planning activities, I don't think that it accurately conveys the potential of integrated land use policy reforms (commonly called Smart Growth or New Urbanism) to affect travel activity and emissions. To illustrate this I produced graph in the next tab, titled "Emissions Variationss Illustrated" that compare average per capita daily vehicle travel for various U.S. urban regions, based on data from the US Federal Highway Adminstrations's Highway Statistics Report. I also include a map from the Cool Climate Network website (https://coolclimate.berkeley.edu). These shows that residents in sprawled, automobile-oriented cities typically drive two or three times more than those in compact, multimodal regions, and there are similar ranges within regions. This indicates that that in aggregate, land use factors often cause an order of magnitude difference is per captia vehicle travel and resulting emissions. For more information see: * Todd Litman (2021), Land Use Impacts on Travel, Victoria Transport Policy Institute (www.vtpi.org); at www.vtpi.org/landtravel.pdf. Deborah Salon (2014), Quantifying the Effect of Local Government Actions on VMT, UC Davis Institute of Transportation Studies, California Air Resources Board; at ww3.arb.ca.gov/research/apr/past/09-343.pdf.	Accept. Included Salon's 2015 article based on her 2014 research as part of recent research findingds in this section--had included it in the FOD.	TODD LITMAN	Victoria Transport Policy Institute	Canada
79275	62	12	65	18	This section makes no mention of parking supply. Most city zoning codes have parking minimums, and most cities supply significant amounts of unpriced on-street parking. This is a huge subsidy for automobile ownership and use; as Professor Donald Shoup describes, free parking is a fertility drug for cars. Reducing or eliminating parking minimums, reducing total parking supply, and more efficiently pricing public parking are very effective ways to reduce automobile ownership and use. Since they are land use policies, these strategies should be mentioned in this chapter, and again in the Transport chapter. See: Robert Pressl and Tom Rye (2020), Good Reasons and Principles for Parking Management, Sustainable Urban Mobility Plans (https://park4sump.eu); at https://bit.ly/3pNTw84.	Accept. Added a section on parking as an urban planning strategy to reduce VMT.	TODD LITMAN	Victoria Transport Policy Institute	Canada
10723	62	17	62	17	This section does not discuss at all how the city and its districts ought to be optimized in such a way that frequent trips are made as short as possible (meaning that transport energy as well a time is spared). A very good example is the primary school, and of course there are shops, possibly post office. Where does this chapter deal with these issues, which in my view sound like urban planning?	Accept. Added a section on accessibility and the 15 / 20 min. city movement.	Philippe Waldteufel	CNRS	France
11919	62	17	62	24	Enumerating a typically challenging situation: the immediate urban peripheral areas are exploited for land use by geo-political decisions as the added advantage of infrastructures' with ease of accessibility and often this piecemeal initiatives do not get integrated with the existing systems. Such initiatives lack to address social and regional environmental issues contributing for climate change.	Reject. Not clear where this issue could be addressed.	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16441	62	17	65	11	Literature has provided strong evidence on the role of spatial planning in GHG mitigation. Through spatial planning, various mitigation polices can be implemented and desirable outcomes can be acheived. In this chapter, spatial planning should be treated with more gravity than the current section, 3.4.3.2. Other mitigation measures such as electrification can be disccussed in other chapters as well but spatial planning is the one that needs to be discussed in depth in this chapter. Planning interventions and strategies, preferably at various spatial scale need to be discussed.	Accept. This section has been expanded with results from recent research.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
65141	62	24	62	24	Please expand on what inter-city case and intra-city unit means. It is not self explanatory, even in this context. An example would be helpful.	Accept. Explained the difference in the text of the sentence.	Karishma Asarpota	ICLEI World Secretariat	Germany
9947	62	26		32	While reduced VMT may be equal to reduced GHG emissions, this only apply for residents who conduct activities at the city level. Additional reference on goods consumption and where the residents obtained them or other attributable to cities may be useful to give more detailed view on GHG emissions.	Reject. This section is only focused on urban land use and spatial planning.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
11283	62	26	63	10	The very effective policy of reallocating road space deserves a mention in this section, particularly in light of the recent OECD - ITF report. "Reallocating road and parking space to exclusive public transit lanes, protected bike lanes and pedestrian priority streets can "evaporate traffic" and reduce vehicle kilometers traveled in urban areas." ITF (2021), Reversing Car Dependency: Summary and Conclusions, ITF Roundtable Reports, No. 181, OECD Publishing, Paris www.itf-oecd.org/avoiding-car-dependency	Accept. Included in the expanded section on parking.	Eric Doherty	Ecopath Planning	Canada
21863	62	27	62	28	Two important remarks to be included in addition to this sentence: 1) The notion of density can refer to several meanings. Density is the ratio between a quantifiable element - inhabitant, employment, square metre of floor space, for example - and the surface area. It is therefore important to specify what it is. 2) It is also important to specify how the various parameters of spatial organisation will affect greenhouse gas emissions: -accessibility, because it allows everyone to have access to less emitting modes of transport (public transport, soft modes) ; -proximity to various functions (work, leisure, school, shops), by avoiding many car journeys.	Partially accept. Have added a section on the new focus on accessibility, Section 8.4.3.5 Not sure whether we need to discuss density, perhaps we should include a version of the AR5 figure on density.	Government of France	Ministère de la Transition écologique et solidaire	France
3135	62		65		Congratulations on a great chapter. For section 8.4.3.2. Urban land use and spatial planning, I have the following comments:	Thank you! Specific comments in 1035-1040.	Anthony Gad Bigio	George Washington University	United States of America
16479	63	5	63	5	one empty column	Accept. Yes, there was a mistake in the table. Corrected in the final table. Thanks for pointing this out.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
21865	63	7	63	7	Can these general rules apply to all cities, or, rather, an adapted mix should be sought based on local contexts?	Accept. Added sentence clarifying this, before brief descriptions of recent research.	Government of France	Ministère de la Transition écologique et solidaire	France
6147	63	18	63	23	Following articles indicates difference of the impact of urban compaction by city conditions based on the subnational transport emission analysis. Requirements for more precise conditions of urban compactness should be mentioned using these articles. - Matsuhashi, K.; Ariga, T. Estimation of passenger car CO2 emissions with urban population density scenarios for low carbon transportation in Japan. IATSS Res. 2016, 39, 117–120. - Kii M. Reductions in CO2 Emissions from Passenger Cars under Demography and Technology Scenarios in Japan by 2050. Sustainability. 2020; 12(17):6919. https://doi.org/10.3390/su12176919	Accept, excellent articles, added their research to out review. Will include in review of recent articles.	Masanobu Kii	Kagawa university	Japan
21867	63	19	63	20	About "[...] while compact urban form reduces energy use [...]": It is necessary to clarify the debate between density and compactness	Yes, we have to revive the old figure.	Government of France	Ministère de la Transition écologique et solidaire	France
72015	63	19	63	20	Not only due to a vehicle transport - also due to higher buildings energy efficiency - multiflat apartment buildings consume much less energy comparing to individual one family buildings.	Partially reject. This chapter is focused on urban form, we should refer to the chapter on Buildings, Chapter 9.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
9949	63	23			Air quality also relates to green open spaces and the landscape elements such as types of tree which absorb emissions.	Taken into account. The ways in which urban land use and spatial planning can support air quality is provided with additional clarification.	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
16481	63	24	63	24	remove "s" in "depends"	Accepted.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
65143	64	8	64	10	Suggestion for an additional reference to support the statement that urban land use and spatial planning for sustainable urban form is a system-wide intervention and has the potential to be combined with sustainable development objectives while pursuing climate mitigation for urban systems. Energy Strategies, the Urban Dimension and Spatial Planning, K.Asarpota & V. Nadin 2020https://www.mdpi.com/1996-1073/13/14/3642	Accepted. Added a new subsection focused on the article	Karishma Asarpota	ICLEI World Secretariat	Germany
21869	64	11	64	14	It is likely that the inhabitants of dense cities are potentially those who will travel more on weekends, at weekends, or for air travel. This would cancel out the gains made for daily journey between home and work. We can refer to Xaviers Desjardin, Marie Llorente, Quelle contribution de l'urbanisme et de l'aménagement du territoire à l'atténuation du changement climatique ?, 2009, p. 74	Reject. Interesting comment. Is it becuse residents in urban areas have higher income? Because they're trying to flee the city? Would need more research findings on this topic to incorporate.	Government of France	Ministère de la Transition écologique et solidaire	France
61439	64	11	64	14	No doubt that urban compact form has positive impacts to climate mitigation. However, with COVID-19 experiences will this be the way to go? See World Cities Report 2020; The Value of Sustainable Urbanization -https://unhabitat.org/wcr/	Partially Reject. See new section on 15-20 minute cities.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
4967	64	11	64	15	The authors write: "Compact urban form can also enable positive impacts on employment and green growth given that the local economy is decoupled from emissions, vehicle km travelled and related parameters while the concentration of people and activity can increase productivity based on proximity and efficiency (Lee and Erickson 2017; Salat et al. 2017; Gao and Newman 2018; Han et al. 2018; Li and Liu 2018).". On the other hand, compact cities with high population density, and, as a consequence, with high urban density, risk to develop high-magnitude urban heat island phenomena, which, in turn, affect building energy use and human health. As a consequence, building energy use affects climate change resulting in a vicious circle. This kind of observation is missing within the paragraph, cosenquently, it seems that the paragraph suggests that compact forms might be a solution to mitigate GHG emissions and this might be misleading for readers	Reject. Whether higher densities and more compact development increase emissions depends on the source of energy used for cooling in future settlements. Regardless, transportation is a major driver of GHG emissions.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
21871	64	31	64	32	We suggest to add "and technical" between "institutional" and "capacities" ("institutional and technical capacities")	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
66949	64	33	64	47	district heating and cooling networks come in here without being logically connected to the rest of the sub-chapter. It might even make sense to put this in a box/ specific sub-heading as district energy has lots to do with spatial planning but also supports the shift to more energy efficienct urban areas. In this context it would also need to be reflected that currently district heating relies to more than 90% on fossil fuels (although some cities are activiely pushing renewables in their networks)	Accept. A new section subheading will clarify this.	Lea Ranalder	REN21	France
49621	64	40	64	47	The statement requires more clarity. It can be supported with examples highlighting the role of urban forms and design parameters	Accepted.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
14811	64	42	65	7	As an example of synergies between urban form and renewable (district) energy systems, it may be relevant to mention the role of subsurface heat island effects: urban areas with geographically dense heat demand also tend to present significant anthropogenic temperature changes in the shallow subsurface (<100m), caused by heat transfer from buildings and underground structures (distinctly from the more commonly studied surface-level heat island effects). These subsurface heat island effects usefully complement shallow geothermal energy, as the anthropogenic subsurface heat flux can partly be "recycled" and valorized for heating using ground-source heat pumps or as part of seasonal thermal storage strategies. Several case studies reviewed in Bayer et al. (2019) evaluate this effect (e.g. Fig. 6), and find that anthropogenic subsurface heat could meet a significant portion of annual heating demand in representative cities, if suitably managed.https://doi.org/10.1016/j.rser.2019.02.019	Taken into account. The suggested reference "The geothermal potential of cities" is relevant and also provides another way of utilizing thermal energy in the urban context.	Marc Jaxa-Rozen	University of Geneva	France
21873	65	4	65	4	We suggest to add : " (...). Ongoing innovations and experimentations in recovering (low-temperature) heat from diverse urban infrastructure such as subways, sewage systems and buildings enlarge the possible uses for excess heat. Furthermore, waste heat capture associated with heat demand assessment at the district or the city level tend to be included in energy efficiency urban strategies. (Fontaine & Rocher, 2020). This further supports (...)" Fontaine, A., Rocher, L., 2020, Energy recovery on the agenda. Waste heat: a matter of public policy and social science concern, Journal of Environmental Planning and Management DOI 10.1080/09640568.2020.1823345	Accepted. The suggestion is relevant and integrated into the chapter along with other references.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21875	65	12	65	12	Section 8.4.4 Urban nature-based solutions for climate change mitigation The parts that address development and urban planning should take more account of the diversity of cities, particularly their history and built heritage. Some European cities, for example, are characterized by old city centers that are highly impermeable, with buildings that have poor energy performance and networks that are often old and high GHG emitters. It is very difficult to operate on these urban structures, which are often part of the heritage and for which renovation can be very costly and complicated. Sometimes, revegetation is very difficult and prevented by multiple constraints, legal, land, historical, etc..	Taken into account. A sentence was added at the end of the chapter.	Government of France	Ministère de la Transition écologique et solidaire	France
21877	65	12	65	12	In the category of nature based solutions, the use of new materials in construction is missing. The use of wood, local natural materials such as bamboo, and new biomimetic materials such as bacteria (self-repairing cement, for example) allows both carbon sequestration and better energy efficiency.	Taken into account. A sentence was added at the end of the chapter.	Government of France	Ministère de la Transition écologique et solidaire	France
4971	65	12	67	4	A book chapter which investigates benefits, co-benefits and limits to the application of NbS is the following: "T. Susca, «Nature-based-solutions applied to the built environment to alleviate climate change», in Handbook of Climate Change Mitigation and Adaptation, Springer Nature., Maximilian Lackner, Baharak Sajjadi, Wei-Yin Chen, In Press". I would suggest to cite it if you believe it is worth citing it	Noted.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
65203	65	12	72		Subsection 8.4.4, Urban nature-based solutions for climate change mitigation, makes no mention of the use of mangroves in urban mitigation. The conservation of natural mangroves have been important mitigation efforts seen in Singapore, the Philippines and Australia (citations at the end of the text) and there are coastal cities/ towns looking at manmade mangroves for hazard mitigation. (1) Katherine Vande Velde, Jean Hugé, Daniel A. Friess, Nico Koedam, Farid Dahdouh-Guebas, Stakeholder discourses on urban mangrove conservation and management, Ocean & Coastal Management, Volume 178, 2019, https://doi.org/10.1016/j.ocecoaman (2) Atchison, J. Green and Blue Infrastructure in Darwin; Carbon Economies and the Social and Cultural Dimensions of Valuing Urban Mangroves in Australia. Urban Sci. 2019, 3, 86. https://doi.org/10.3390/urbansci3030086 (3) Azyleah C. Abino, Jose Alan A. Castillo & Young Jin Lee (2014) Assessment of species diversity, biomass and carbon sequestration potential of a natural mangrove stand in Samar, the Philippines, Forest Science and Technology, 10:1, 2-8, DOI: 10.1080/21580103.2013.814593	Taken into account. A sentence was added at the end of the chapter.	Karishma Asarpota	ICLEI World Secretariat	Germany
6991	65	13	64	15	Coordination with WGII is needed for consistency. The WGII SOD glossary defines NBS as 'Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits."	Taken into account. ICUN definition used. Text was changed accordingly.	Debra Roberts	EThekwini Municipality	South Africa
6993	65	13	65	15	Coordination with WGII is needed for consistency. The WGII SOD glossary defines NBS as 'Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.	Taken into account. ICUN definition used. Text was changed accordingly.	Debra Roberts	EThekwini Municipality	South Africa
27779	65	13	65	15	Use the NBS defition as presented in the Glossary of the SOD of WG III (Annex A).	Taken into account. ICUN definition used. Text was changed accordingly.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
46043	65	13	65	15	As the concept NbS is defined in the Glossary with the IUCN Definition, it seems inconsistent to use another definition for chapter 8. Though the EC definition is established and oriented towards urban systems, it would be more appropriate to consistently use the IUCN definition throughout the whole report. In case t EC definition is still used, please at least refer to both definitions in this chapter and clarify, why a second definition is used in the chapter 8. Please check the definition of NbS across chapters.	Taken into account. ICUN definition used. Text was changed accordingly.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
56195	65	22	65	22	Vertical forests are also added building related nbs options.	Taken into account. Added.	Eray Özdemir	General Directorate of Forestry	Turkey
8795	65	22	65	24	These examples characterize nature as the patient and humans as the agent for climate mitigation whereas NBS requires climate action to use and improve existing nature services (or simply to go with the flow of nature). Please refer to http://dx.doi.org/10.1038/s41559-017-0273-9 for a detailed comment on this issue.	Sorry I do not get the point. The paper is about scenario development and stakeholder integration.	Görkem Güngör	Middle East Technical University	Turkey
21879	65	22	65	25	NBS also includes the urban reconfiguraton of public spaces, and the development of urban agriculture. (Artmann & Sartison, 2018; Ferreira et al., 2018)	Noted. But urban agriculture and food security was addressed in other parts of the chapter.	Government of France	Ministère de la Transition écologique et solidaire	France
46045	65	22	65	26	It should be stressed that NbS are only "related to" i.e. can be an element of built infrastructure such as sustainable urban drainage systems (e.g. water retention ponds) but that built infrastructure/SUDS e.g. artificial wetlands cannot be referred to as a nature-based solution.	Taken into account. Text changed accordingly.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
147	65	24	65	26	SUDS also plays a crucial aspect of ensuring water quality within urban areas; they are necessary to implement various directives, such as EU Water Framewor Directive	Noted.	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
21881	65	27	65	29	This statement needs to be put into perspective. The use of green roofs and green walls is very dependent on climatic conditions. If they are traditional in Iceland, they are not recommended in Tunisia or Morocco, by the amount of water they require for their maintenance. In tropical countries, this solution is not viable because of the humidity it brings which causes the deterioration of buildings.	Taken into account. Text changed accordingly.	Government of France	Ministère de la Transition écologique et solidaire	France
66169	65	27	65	34	Green roofs and green facades have a potential to reduce the air temperature inside the buildings, impacting energy consuption levels. However its impact for city climate and UHI is small. This difference of impacts according to the scale is not very clear in this section. Coutts have shown that in some cases it is more efficient to collect water from the roof and use it to watering a tree, planted in the soil. Please refere to the work of Water Sensitive Cities Institute in Australia, especially the work of Andrew Coutts: COUTTS, A. (2015). Green infrastructure for cities: It´s all about trees. Urban Climate News n.57, p. 7–12, set. 2015.	Noted.	Luciana Schwandner Ferreira	São Paulo City - Secretary of the Environment	Brazil
60647	65	27	65	40	The studies cited here on the effect of vegetation on temperature are anecdotal, selective, highly optimistic and do not represent the scientific consensus regarding the potential of green roofs or walls. The effects depend on numerous factors, including the spatial extent of the implementation of the mitigation strategy and the initial reference condition to which the effect is compared. For a more rigorous study I recommend Krayenhoff et al (2021): Cooling hot cities: A systematic and critical review of the numerical modelling literature. Environmental Research Letters, in press https://doi.org/10.1088/1748-9326/abdcf1.	Taken into account. Text change and adapted in several places.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
16483	65	28	65	28	lower instead of lowering?	Taken into account. Text changed accordingly.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
4969	65	29	65	34	Green roofs can provide a wide range of benefits depending on many factors, one of the most important is the scale of application which has not been cited within the paragraph. I would suggest to take a look to the following article which might also be cited if you believe it is worth citing: "Susca T. Green roofs to reduce building energy use? A review on key structural factors of green roofs and their effects on urban climate. Building and Environment. 2019 Sep 1;162:106273." As well as "T. Susca, F. Zanghirella, L. Colasuonno, e V. Del Fatto, «Effect of green wall installation on urban heat island and building energy use: a climate-informed review», Renew. Sustain. Energy Rev., In review."	Taken into account. Issue of scale was added and reference provided.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
65069	65	38	65	38	It should be noted that green roofs are also favourable where cooling is the dominant energy demand.	Noted	Karishma Asarpota	ICLEI World Secretariat	Germany
149	65	41	65	47	It would be interesting to add some points of the current sponge city debate; about their impact on pluvial floods etc.	Noted but goes beyond the scope of this short chapter part.	Thomas Thaler	University of Natural Resources and Life Sciences	Italy
2959	65	41	66	11	Following are some studies that look at the effectiveness of green infrastructure -Fiori, A. and Volpi, E. (2020) On the Effectiveness of LID Infrastructures for the Attenuation of Urban Flooding at the Catchment Scale., Pour, S.H., Wahab, A.K.A., Shahid, S., Asaduzzaman, M. and Dewan, A. (2020) Low impact developmer techniques to mitigate the impacts of climate-change-induced urban floods: Current trends, issues and challenges. Sustainable Cities and Society 62, 102373. Water Resources Research 56(5), e2020WR027121.	Taken into account. Text changed accordingly.	Suresh Hettiarachchi	UNSW	Australia
2961	65	41	66	11	Green infrastructure can delay unset of runoff and overall runoff volumes, but only up to a certain magnitude of storms. Not only pourus pavers, but overall Green infrastructure effectiveness varies with type of storms (Qin et al. 2013). At best, Green infrastructure can be effective to about the 70th percentile storms(Hettiarachchi et al. 2019). -- Qin, H.-p., Li, Z.-x. and Fu, G. (2013) The effects of low impact development on urban flooding under different rainfall characteristics. Journal of Environmental Management 129, 577-585. Hettiarachchi, S., Wasko, C. and Sharma, A. (2019) Can antecedent moisture conditions modulate the increase in flood risk due to climate change in urban catchments? Journal of Hydrology 571, 11-20.	Taken into account. Text changed accordingly - reference of Qin et al. 2013 included.	Suresh Hettiarachchi	UNSW	Australia
2963	65	41	66	11	Green roofs, though effective as suggested in the report, are not optimal as extensive application, almost 100% conversion of impervious area is needed to provide adequate mitigation of urban flooding(Masseroni and Cislaghi 2016). - Masseroni, D. and Cislaghi, A. (2016) Green roof benefits for reducing flood risk at the catchment scale. Environmental Earth Sciences 75(7), 579.	Taken into account. Text changed and reference added.	Suresh Hettiarachchi	UNSW	Australia

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2965	65	41	66	11	climate changes is projected to increase the severity of storms ((Lenderink and van Meijgaard 2008, Wasko and Sharma 2015). This increase in storm intensity translates to more server flooding in the urban space (Hettiarachchi et al. 2018). The limited efficacy if Green infrastructure towards more extreme storms suggests that Green infrastructure can be less effective in a future climate. - Lenderink, G. and van Meijgaard, E. (2008) Increase in hourly precipitation extremes beyond expectations from temperature changes. Nature Geoscience 1(8), 511-514., Wasko, C. and Sharma, A. (2015) Steeper temporal distribution of rain intensity at higher temperatures within Australian storms. Nature Geosci 8(7), 527-529. , Hettiarachchi, S., Wasko, C. and Sharma, A. (2018) Increase in flood risk resulting from climate change in a developed urban watershed–the role of storm temporal patterns. Hydrology and Earth System Sciences 22(3), 2041.	Noted. However, climate change impacts on flooding, etc. - as modelled - is above scope of this brief chapter.	Suresh Hettiarachchi	UNSW	Australia
2967	65	41	66	11	Antecedent moisture conditions can have a significant impact on the efficacy of Green infrastructure. Changes in projected seasonal distribution of rainfall can modulate urban flooding during more frequent storms in certain areas(Hettiarachchi et al. 2019), Hettiarachchi, S., Wasko, C. and Sharma, A. (2019) Can antecedent moisture conditions modulate the increase in flood risk due to climate change in urban catchments? Journal of Hydrology 571, 11-20.	Noted.	Suresh Hettiarachchi	UNSW	Australia
2969	65	41	66	11	With larger more extreme storms projected to get more intense and flooding during more frequent storms possibly getting less, urban storm water management will be more variable and complex with a changing climate. A more adaptive and flexible approach integrated into the function of the urban environment is needed to adequately address flooding in a future climate.	Noted.	Suresh Hettiarachchi	UNSW	Australia
2539	65	41	66	2	Another example showing that in an urban setting NBS has benefits in modulating increases in rainfall under climate change is https://doi.org/10.1016/j.jhydrol.2019.01.039. This is because, as it is written in Line 6 of Page 66, due to the capacity of NBS to store water. It might however be worth noting the benefits may be limited to smaller (more frequent) rainfall events with little attenuatation for larger (rarer) events (e.g. https://doi.org/10.5194/hess-22-2041-2018; https://doi.org/10.1016/j.jhydrol.2018.03.041).	Noted.	Conrad Wasko	University of Melbourne	Australia
2535	65	44	65	44	"Using green" I think should say "Using green infrastructure"	Agreed.	Conrad Wasko	University of Melbourne	Australia
2957	65	44	65	44	'green' should be corrected to say 'green infrastructure'	Agreed.	Suresh Hettiarachchi	UNSW	Australia
80531	65	45	65	45	Add after L45: Improved estimates of the NBS performance require to take into account the spatial heterogeneity of the rainfall, as well as of the NBS (Versini et al 2018, 2020, Qiu et al, 2020). These improvements rather demonstrate that combined NBS (e.g. green roofs with rain gardens and porous pavements) seem to be the most efficient.	Noted but no reference provided.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
74945	65		66		Consider Kenya's 10% forest cover progress and nature based solutions initiatives including indigenous knowledge systems and approaches	Noted.	Government of Kenya	Kenya Meteorological Service	Kenya
60649	66	1	66	2	Again, this is an extreme anecdotal example. Peak flows can be mitigated to the extent that no water at all is drained by the urban storm water system - if the rain event is limited in intensity and time. The report should cite representative examples, not outliers.	Agreed. This exmaple was deleted.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
2537	66	10	66	10	It may be worth specifying that in addition to green roofs, in a case study for Melbourne, Australia, rain water tanks have also been shown to reduce flood costs by up to 30% (https://doi.org/10.1016/j.watres.2019.115372)	Noted. But this is a rather technical solution.	Conrad Wasko	University of Melbourne	Australia
9951	66	12			Air quality also relates to green open spaces and the landscape elements such as types of tree which absorb emissions.	Noted	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
16485	66	12	66	12	Needs a description about "active transportation"	Agreed. "Physically active transportation" was added.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
60651	66	16	66	16	Something missing here - 3.5 more cyclists???	Agreed.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
75603	66	16	66	16	text says "3.5 more cyclists". Should probably be 3.5 times more cyclists. Or 3.5 percent more cyclists.... :)	Agreed.	Jan Riise	Chalmers University of Technology / Gothenburg Centre for Sustainable Development	Sweden
60653	66	17	66	19	Again - this is selective reporting of the evidence. The cost comparisons, even if carried out like-for-like, are valid only for the scenarios examined. Car and bicycle travel may not serve the same roles.	Taken into account. These examples are selective which is highlighted here.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
53733	66	29	66	29	"Maanshwahan" should be "Maanshan".	Agreed.	ZHENG XINZHU	China University of Petroleum (Beijing)	China
61441	66	30	66	32	Consider opportunities link SDG11, target 11.3 and 11.7 on land comsumption and built up areas with potential data and infromation for assessment of NBS and opportunities integration in spatial planning.	Taken into account. Text added.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
56197	67	1	67	1	There should be added a column under building related NBS as vertical forests.	Taken into account. Figure updated accordingly	Eray Özdemir	General Directorate of Forestry	Turkey
65195	67	1	67	2	Figure 8.24 for uniformity, recommend removing the specific example of the "Barcelona Superblock" and instead listing it as greenways as it is referred to in the text. No where else in the figure is a specific example listed. Furthermore, there is another greenway example noted in the prior text in Maanshwahan, China, and it feels odd that only the Barcelona Superblock to be mentioned.	Taken into account. Figure updated accordingly.	Karishma Asarpota	ICLEI World Secretariat	Germany
65197	67	1	67	2	Figure 8.24 lists cemeteries as a form of urban forestry, however, this is not mentioned nor referenced at all in the prior subsection text, which the figure is referencing. A sentence or citation of this would within the subsection be helpful to readers.	Taken into account. Figure updated accordingly.	Karishma Asarpota	ICLEI World Secretariat	Germany
46047	67	1	67	4	It should be stressed that NbS are only "related to" i.e. can be an element of built infrastructure such as sustainable urban drainage systems (e.g. water retention ponds) but that built infrastructure/SUDS e.g. artificial wetlands cannot be referred to as a nature-based solution. Figure 8.24. is misleading here under "non-building related NbS" including SUDS	Taken into account. Figure updated accordingly.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
72017	67	1	67	4	Blue infrastructures are missing.	Noted but blue infrastructure was not mentioned explicitely in the text.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
72019	67	5	67	5	Potential of blue carbon?	Noted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
81307	67	11	67	12	This seems a rather extreme assumption; planting every single square metre of non-tree and non-impervious land to tree cover would mean no more public parks, no more sports fields, no grass lanes. This a geophysical limit but not a plausible assumption, and should be labelled as such.	Partially accepted - the following sentence addresses that this maximum cannot be attained due to land use restrictions; added some text - "and prevent maximum potential tree cover from being attained in urban areas"	Andy Reisinger	Ministry for the Environment	New Zealand
80533	67	16	67	18	Replace L16-18 by: The above global estimates of urban tree carbon storage and sequestration are based on averaged carbon density values from the US. It can be argued (Blais et al. 1975) that they are likely to be conservative with respect to two to five times higher averaged densities in Amazonian forests.	Partially accepted - reworded as the suggested change was unclear	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
65199	67	16	67	23	The paragraph explains why current urban carbon storage and sequestration calculations are based on the C density values from the US and goes on to mention how these values are comparable to values in other countries. However, none of the countries mentioned are from the Global South. If there are, it would be helpful to include. If not, it may be worth acknowledging this in the last sentence that states, "More research is needed..."	Accepted - no southern hemisphere data; added text to more research text	Karishma Asarpota	ICLEI World Secretariat	Germany
16487	67	17	67	18	incomplete sentence	Accepted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
60655	67	18	67	18	Is there evidence the estimates are conservative? In dryland areas the values may be lower... Remove parentheses.	Partially accepted - as about 75% of urban land globally is within forest biomes, the impact of carbon densities within forested regions will have the greatest impact on global carbon densities in urban areas. Changed text to may be conservative	Evyatar Erell	Ben-Gurion University of the Negev	Israel
80535	67	19	67	22	Replace L19-22 by: However, the fluctuations of the carbon storage density rates of tree cover are presumably much higher than what is usually reported, particularly in urban areas, e,g., 3.14 to 14.1 kgC/m2 for US, 3.85–5.58 kgC/m2 for South Korea, 1.53-9.67 kgC/m2 for Spain and 28.1-28.9 kgC/m2 for Leicester, England (Nowak et al. 2013). Indeed, it is not only important to take into account the various storage components and their own rates -e.g. , aboveground biomass (living plants), below- ground biomass (living roots), the carbon contained in the soil, and dead organic matter (Sharp et al. 2016)- but also the strong heterogeneity of the tree cover down to scales as small as 10 meters in urban land (Borges et al., 2020).	Partially accepted. Added text: At the local scale, these above- and below-ground tree carbon densities can vary substantially, as will carbon in soils and dead woody materials.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
66171	67	24	68	4	It is important to highlight that the urban vegetation should be carefully planned in order to maximise its benefits. The vegetation also has to have adequate conditions of survivel in cities in order to contribute to UHI mitigation. Trees have to have access to water, space to grow and have to be adequate mantained. Also, the effects of the global climate change can also affect trees,for further details please refer to ORDÓÑEZ, C.; DUINKER, P. N. (2014). Assessing the vulnerability of urban forests to climate change. Environmental Reviews, v. 22, n. 3, p. 311–321.	Accepted - added: Urban forest planning and management can maximize these benefits for current and future generations by sustaining optimal tree cover and health.	Luciana Schwandner Ferreira	São Paulo City - Secretary of the Environment	Brazil
70053	67	24	68	4	Original phrase: "More importantly, trees in urban areas reduce air temperatures, shade surfaces, consequently alter building energy use and can be economically productive. On a per-tree basis, urban trees offer the greatest potential to reduce climate change as not only do they sequester carbon, but they also can provide a permanent reduction in GHG emissions through reduced energy use. Urban trees can also help mitigate some of the impacts of climate change by reducing UHIs and heat stress, reducing stormwater runoff, improving air quality, and improving health and wellbeing in areas where the majority of the world's population resides." Comments: although many of the statements made (marked in blue) are common sense, mainly for researchers and academics who work with environmental issues, I believe that it would be important to present a reference (a scientific paper) that supports these statements. It is always important to remember that this document will also be read by public managers, policy makers, politicians, lawyers, etc. for which an academic reference may be important.	Accepted - added references	PEDRO CORTES	University of Sao Paulo - USP	Brazil
21883	68	9	68	9	Please consider replacing "winter" with "cold season" because in tropical countries, winter is the dry period, while summer is wet. This reflection on energy does not make sense in these countries.	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
72021	68	9	68	9	In winter trees are without a leaves, so not a big negative impact. There are studies showing that passive cooling by trees shading means saves a lot of energy for cooling and the impact of trees without a leaves shading in a winter is not an issue.	Rejected - There are many studies that indicate trees out-of-leaf still block 35-45% of solar radiation and increase cold-season heating needs.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21885	68	11	68	11	Why only in "developing countries" ? urban agriculture is booming in developed countries	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
65201	68	15	69	18	Box 8.2 mentions the ecology term, "understory," several times but the term is not defined anywhere in the text. Since this is a forestry/ecology term, it may be worth adding a short definition for readers who are not as familiar	Accept. This section has been edited to provide a description in parenthesis to further describe the term understory.	Karishma Asarpota	ICLEI World Secretariat	Germany
60657	68	16	68	16	extant' should be 'extent'.	Accept	Evyatar Erell	Ben-Gurion University of the Negev	Israel
6995	68	25	60	28	It might be useful to discuss the implication of this option for revenue generation in cities that derive revenue from the sale of electricity to residents. Increased installation of private off-grid options means less revenue for cities and this has implications for cities' ability to deliver other equally important services. This is one of the important lessons for the private response to the Cape Town drought (see WGII SOD Ch8 page #43 lines 40-54).	Noted	Debra Roberts	EThekwini Municipality	South Africa
60659	68	31	68	31	There are numerous references to papers still under review. The desire to be up to date should be balanced with the need for rigorous scientific evaluation. This comment is NOT specific to this particular article, but rather a general one.	Taken into account. To clarify, there is one paper in this section example that is under review that is cited several times. it is the basis for the quantified estimates of carbon accounting for urban forested natural areas. In this paper and in this study that is under review rigirous studies that have been previously published are also cited (CP).	Evyatar Erell	Ben-Gurion University of the Negev	Israel
4539	73	1	73	12	Add reference: Bharat, A (2017), Is an unbuilt area of land available for development,https://www.acccrn.net/sites/default/files/publication/attach/is_an_unbuilt_area_of_land_available_for_development.pdf	Noted	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
62111	73	2	73	12	Among possible urban-rural linkages, renewable energy can also be produced in rural areas (e.g. using wind energy, solar, biomass) and provided to cities.	Taken into account; addressed as circular economy between rural and urban areas	Bruno Peuportier	MINES ParisTech	France
21887	73	2	73	2	About "Cities are open systems that depend on their hinterlands in terms of imports" It is a very important consideration that should be mentioned in the executive summary.	Rejected: not clear what the comment is	Government of France	Ministère de la Transition écologique et solidaire	France
21889	73	13	73	13	section 8.4.5.1 Waste prevention, minimisation, and management The co-benefits of waste treatment should be highlighted in terms of health and the achievement of SDGs.	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
4751	73	13	74	33	The section on waste ahould also highlight the linkages to adaptation. Especially for non recylable plastic waste, if unmanaged, will end up in water streams and the ocean especially for coastal cities and SIDS. Umanaged waste also has a negative impact on the natural ecosystems such as mangroves, thus undermining their performance in providing natural protection against coastal erosion.	Noted	Sagar Sagar	GGGI	Canada
21891	73	18	73	18	Please consider to add: "(…). The generation and composition of waste varies considerably from region to region and city to city. So do the levels of institutional management, infrastructure and (informal) work in waste disposal activities. Depending on the context, policy priorities are directed towards reducing waste generation or equipping safe waste treatment infrastructure."	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
21895	73	19	73	19	The "municipal solid waste" (p73 l19) is actually a small part of urban waste, in comparison to economic waste and contruction waste. It is even very low in comparison to waste footprint of consumed goods in cities.	Edited	Government of France	Ministère de la Transition écologique et solidaire	France
21893	73	19	73	20	This integrated management presupposes cooperation between the city and the intermediate towns or villages in its surroundings, in order to optimize the cost of infrastructure, technology and transport. These associations often take the form of metropolitan areas which have autonomous governance.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
43203	73	19	73	24	Integrated solid waste management is a dated concept, from the 1990s, that does not directly address GHG emissions. A far better framework to use is zero waste, which has been embraced by C40 as a complete solid waste management strategy with a focus on emissions reductions. Point (ii) combines two very different emissions reductions pathways: avoided LULC emissions and direct emissions from waste sites -- these should be separated. Most importantly, there is little evidence that waste-to-energy reduces emissions, so point (iii) should be dropped. References: C40 : Zero Waste Declaration. (n.d.). Retrieved March 10, 2021, from https://www.c40.org/other/zero-waste-declaration Tangri, N. V. (2021). Waste Incinerators Undermine Clean Energy Goals. Retrieved from https://eartharxiv.org/repository/view/2050/	Rejected; zero waste is an aspirational-laden concept that is difficult to achieve.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
14987	73	20	73	20	The following red text with the reference literature should be added to the end of the draft clause; -------cities to maximise the mitigation potential of the waste sector while reducing pressures on land and the environment. "As one of case studies, a cement kiln acts as WtE plant to utilize municipal solid wastes by contributing up to 20% CO2 emission reduction from local community (Morimoto et al. 2006)*. " *: Journal of Life Cycle Assessment, Japan, Vol.2 No.4 October 2006 "Proposals for Classification and an Environmental Impact Evaluation Method for Eco-Services: Case study of Municipal Waste Treatment in Cement Production"	Noted; reference is also before AR5	NAOKI AOKI	Japan Cement Association	Japan
21897	73	36	73	40	Besides the evocation of the possible future positive impacts of waste management on employment and economic growth in a circular economy perspective, the current situation of the waste economy, notably its reliance on worldwide massive informal work, should be mentioned. Nb. This would be consistent with 8.7 section of this chapter	Response is to be provided.	Government of France	Ministère de la Transition écologique et solidaire	France
21899	73	42	73	42	The circular economy (p73 l42) in the industries doesnt mean all the time GHG reduction. It can be the increase of recycling or waste-to-energy.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
74947	73		74		Consider including the greening aspects of the circular economy approaches vs waste reduction strategies for global south cities	Accepted.	Government of Kenya	Kenya Meteorological Service	Kenya
74995	73		74		In this section 8.4.5.1 Waste prevention, minimisation, and management - Consider bringing in the discussion on circular economy and the potential of this in urban areas and in addressing amount of waste	Taken into account. The circular economy is assessed in detail in Chapter 5 on Demand, services and social aspects of mitigation. Referral is provided in the chapter text.	Government of Kenya	Kenya Meteorological Service	Kenya
21901	74	1	74	1	About "recycling activities into programs while supporting urban sustainability" The issue of recycling is essential and should be explored further, in particular to highlight the (sometimes negative) effects on the carbon footprint.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
21903	74	3	74	3	About "Waste prevention, minimisation, and management measures" The economic organization of the sector should be examined, as it is sometimes a hindrance to low-energy and decarbonized waste management. For example, in some countries, the same operator handles the collection, transportation, incineration and recycling of waste, which makes it impossible to know what is incinerated and what is recycled, even though selective sorting has been introduced	Accepted. The section is restructured for clarity.	Government of France	Ministère de la Transition écologique et solidaire	France

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72023	74	7	74	7	Waste management should include strategy, that waste should be collected and processed at the same near by location as for example it is in Paris Waste collection and processing plant which produce heat energy from near by Waste to Energy plant and supply back heat to buildings.	Accepted. The section is restructured for clarity.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21905	74	13	74	13	P 74 l13 (or below in this section) please consider to add: "(...). Empirical studies have reported difficulties in transforming existing waste management systems along low-carbon objectives, notably in developing countries, where waste removal and recycling is operated within informal economies. For example in Delhi, waste-to-energy solutions sparked local protest (de Bergecol & Gowda, 2018, Demaria & Schindler, 2016). In Mbale, Uganda, the restructuring of waste system through PaO/CDM instruments prove dispossessing and financially, socially and politically destabilizing for the local society (Silver, 2017)." De Bergecol, R., Gowda, S., 2018, A new waste and energy nexus? Rethinking the modernisation of waste services in Delhi, Urban Studies DOI 10.1177/0042098018770592 Demaria, F., Schindler, S., 2016, Contesting Urban Metabolism: Struggles Over Waste-to-Energy in Delhi, India, Antipode, 48, 2, pp. 293-313 DOI 10.1111/anti.12191 Silver, J., 2017, The climate crisis, carbon capital and urbanisation: An urban political ecology of low-carbon restructuring in Mbale, Environment and Planning A, Vol. 49(7) 1477–1499 DOI: 10.1177/0308518X17700393	Partially accepted. The statement is revised and integrated into the text as appropriate.	Government of France	Ministère de la Transition écologique et solidaire	France
21907	74	14	74	14	Why always come back to "technological choices" (p74 l.14) ? Aren't these political and social choices?	Accepted. The text is made more actionable.	Government of France	Ministère de la Transition écologique et solidaire	France
72025	74	14	74	15	+ logistics. WtE should be as close to waste production, precessing and produced energy (from waste) consumption area.	Taken into account. The statement is revised and integrated into the text as appropriate.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
43205	74	14	74	18	The text says that the climate mitigation potential of WTE depends on 3 factors; it would need adding a fourth factor which is the management system including degree and kind of source separation. the text needs further elaboration including the following reference: (Tangri, 2021) directly addresses the question about the climate mitigation potential of WTE and its dependence on the emissions factor of the energy mix that is replaced. Tangri, N. V. (2021). Waste Incinerators Undermine Clean Energy Goals. Accessed here: https://eartharxiv.org/repository/view/2050/	Taken into the account. However, the suggested reference is still in pre-print and has not be peer-reviewed.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43207	74	18	74	20	About first sentence: the paper quoted talks about three different technologies incineration, gasification and Anaerobic Digestion. The climate mitigation potential of each of them is very different and therefore should be specified, according to the information provided in the article quoted. About incineration, the article (Thanopoulos et al. 2020) says "Another limiting factor for waste combustion technologies is their low electrical efficiency, a technical characteristic that can reduce the expected power generation levels in contrast with the amount of generated heat which is quite high [24]. Overall electricity conversion efficiencies are typically in the region of 18–26% [19, 25] and can be potentially improved only when municipal waste is pre-treated before combustion to produce RDF. Furthermore, despite the sharp development of pollution control systems, this technique is still not widely accepted due to concern for toxic metals that may concentrate in ash; emission of solid particulate material, SOx, NOx, chlorinated compounds such as HCl and dioxins [18, 19]." Moreover, it should not be assumed that incineration has any relevant climate mitigation potential worth referring to - same for gasification. The text should be more specific about what technology is referring to - looking at the original article, it refers to the benefits of Anaerobic Digestion mainly, so it should be edited accordingly. Furthermore, an example of a city like Seoul should not be presented as representative for the whole sector and it should be explained that the climate mitigation potential of a given technology depend very much on the context where it's placed, which will affect the composition of waste, the waste and energy infrastructure and other factors. In this sense, the context in developed and developing countries are very different. It needs to be acknowledged that while much of the waste management literature focuses on developed countries, developing countries face distinct opportunities and challenges (Barton et al., 2008; Hoornweg & Bhada-Tata, 2012). In many developing countries, waste management infrastructure and systems are lacking. This represents both a challenge and an opportunity. With rapidly urbanizing populations, governments are hard put to finance the requisite expansion of waste management systems. On the other hand, they are not saddled with the older, polluting infrastructure that characterizes many developed countries. Lack of resources translates into low collection rates, open dumping and burning, and unregulated dumps. The informal waste sector is a large presence in developing countries, so its integration into formal waste management systems is a priority. Finally, the composition of municipal waste in developing countries is quite different from that in developed countries: it contains much higher proportions of food waste, low levels of recyclables (in large part due to efficient collection by the informal sector) and high levels of inerts (Kaza et al., 2018). References: Barton, J. R., Issaias, I., & Stentiford, E. I. (2008). Carbon – Making the right choice for waste management in developing countries. Waste Management, 28(4), 690–698. https://doi.org/10.1016/j.wasman.2007.09.033; Hoornweg, D., & Bhada-Tata, P. (2012). What a Waste: A Global Review of Solid Waste Management. Washington, DC, USA: World Bank Group.; Kaza, S., Yao, L., Bhada-Tata, P., Van Woerden, F., Ionkova, K., Morton, J., et al. (2018). What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Washington, DC, USA: World Bank Group.	Accepted. The text is revised and restructured as needed, considering these points and updated in the final draft.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43209	74	19	74	20	Utilizing energy from a waste incineration plant into heating districts or the general grid may make the plant more energy-efficient but it does not mean that it's doing climate mitigation, ie. reducing GHG emissions. The example of Seoul is not illustrative of the former point, the article quoted does not demonstrate how WTE plants in Seoul are mitigating climate change, and therefore it should be deleted.	Accepted. The text is revised and restructured as needed, considering these points and updated in the final draft.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43211	74	20	74	23	The data about the Copenhagen incinerator is provided by an article written by one of the consultants (Tore Hulgaard) in the Waste-to-Energy Division in Ramboll, direcly linked to the WTE incinerator. The data comes from the industrial facility directly, therefore it seems to be accepted at face value and it raises several questions: a) 150 Kg of bottom ash for road construction are codified, according to the EU Waste Framework Directive, as backfilling hence they do not contribute towards related EU targets, not they can be presented as a credible waste management strategy. b) since the incinerator is fed with household waste, not only from Copenhaguen but also from other countries, since its huge capacity requires to import was 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. c) the statement that the incineration process can produce "water for recycling" it's also very unclear what health or environmental or climate mitigation benefit that can have, without any empirical evidence to back up the safety or utility of this water - unless there is a laboratory analysis certifying lack of contamination in the water, which so far is lacking. 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 to function shows it creates a lock in situation for Copenhaguen to provide feedstock to the plant, and it compromises the city's ability to prioritise 3Rs strategies to reduce, reuse and recycle. Furtermore, this incinerator plant contradicts the overal climate strategy approved in Denmark, which intends to reduce its incineration capacity by 30 percent over the next decade. This climate strategy has been approved by Parliament Agreement and it will restructure the country's waste management strategy. To cut incineration overcapacity, it will need to close seven incinerators. The deal also includes plans to introduce a recycling system with 10 different streams of waste (glass, paper, textiles, etc.) and to slash the amount of garbage it imports. In sum, this plant in Cophenhaguen 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.	Accepted. The text is revised and restructured as needed, considering these points and updated in the final draft.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
14989	74	23	74	23	The following red text with the reference literature should be added to the draft text; ----- and MSc 2018). "Municipal solid wastes as waste plastics are treated by a cement kiln as WtE plant by contributing up to 20% CO2 emission reduction (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.	Rejected.	NAOKI AOKI	Japan Cement Association	Japan

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43213	74	24	74	25	It should add as well the contribution of 'zero waste cities' which prioritise upstream waste management following the Waste Hierarchy and offer the highest benefits in terms of climate change mitigation. "The zero waste is the 6th wave in waste management and the most holistic innovation oftwenty first century for waste management systems for achieving a true sense of sustainable waste management systems. Zero waste systems include a holistic approach of cradle-to-cradle closed-loop design systems, sustainable resource consumption and resource recovery from waste.". Zaman, Atiq Uz, and Steffen Lehmann. "Challenges and opportunities in transforming a city into a “zero waste city”." Challenges 2.4 (2011): 73-93	Accepted. The reference is a well known reference in the literature while prior to the AR6 cycle. Similar references are also integrated into the chapter text.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43215	74	24	74	27	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’." Journal of Cleaner Production 50 (2013): 123-132.https://www.researchgate.net/profile/Atiq_Zaman2/publication/261925208_The_zero_waste_index/links/0f317535f5bf0e8130000000.pdf	Accepted. The intention of the relevant section is to emphasize the waste hierarchy in the urban context.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43217	74	27	74	28	"Urban symbiosis" is not defined in the text. Separate collection and treatment of organic waste, which comprises the majority of the municipal waste stream by mass, is increasingly prevalent, and an effective measure to avoid methane emissions, much more than non separation at source. Furthermore, source separation is the key to successful implementation of good waste management. Source separated waste can be successfully recycled, composted, and diverted from disposal. Cross-contamination, on the other hand, reduces the quantity and quality of the recyclable and compostable materials and can cause operational failures in some treatment technologies, such as anaerobic digestion (Hoornweg & Bhada-Tata, 2012; Wilson et al., 2015). Source separation is particularly important to ensure high-quality compost for land application. (Morris, Scott Matthews, et al., 2013; MRA Consulting Group, 2019; Wilson et al., 2015). Ref: Morris, J., Scott Matthews, H., & Morawski, C. (2013). Review and meta-analysis of 82 studies on end-of-life management methods for source separated organics. Waste Management, 33(3), 545–551. https://doi.org/10.1016/j.wasman.2012.08.004; MRA Consulting Group. (2019). Review of Separate Organics Collection Legislation: A submission to NSW Environment Protection Authority. MRA Consulting Group.; Wilson, D. C., Rodic, L., Modak, P., Soos, R., Carpintero Rogero, A., Velis, C., et al. (2015). Global waste management outlook. United Nations Environment Programme.; Hoornweg, D., & Bhada-Tata, P. (2012). What a Waste: A Global Review of Solid Waste Management. Washington, DC, USA: World Bank Group.; Wilson, D. C., Rodic, L., Modak, P., Soos, R., Carpintero Rogero, A., Velis, C., et al. (2015). Global waste management outlook. United Nations Environment Programme.	The text is revised and restructured as needed, considering these points and updated in the final draft.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
43219	74	29	74	32	It should add as well the contribution of 'zero waste cities' which prioritise upstream waste management folllwing the Waste Hierarchy and offer the highest benefits in terms of climate change mitigation. "The zero waste is the 6th wave in waste management and the most holistic innovation oftwenty first century for waste management systems for achieving a true sense of sustainable waste management systems. Zero waste systems include a holistic approach of cradle-to-cradle closed-loop design systems, sustainable resource consumption and resource recovery from waste.". Zaman, Atiq Uz, and Steffen Lehmann. "Challenges and opportunities in transforming a city into a “zero waste city”." Challenges 2.4 (2011): 73-93	The reference is a well known reference in the literature while prior to the AR6 cycle. Similar references are also integrated into the chapter text.	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
4541	74	35	75	2	Add 'Gastronomic cities' concept	Rejected; will require a definition and no need to introduce the concpet with well acknwoledged terminology on food and cities	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
82859	74	35	75	2	This section could include a discussion of ways in which urban governments could support shifts towards more climate-friendly diets, such as through shifting procurement policies in government institutions to include less GHG-intensive foods. See, for example: Smith, J., Andersson, G., Gourlay, R., Karner, S., Mikkelsen, B. E., Sonnino, R., & Barling, D. (2016). Balancing competing policy demands: the case of sustainable public sector food procurement. Journal of Cleaner Production, 112, 249-256.	Taken into account	Raychel Santo	Johns Hopkins Center for a Livable Future	United States of America
72027	74	41	74	41	There should be taken attention that food production and processing process leaves a lot of food waste in the city. Most efficient is to process food as close as possible to the food harvesting point outside urban area, so to eliminate not necessary logistical expenses.	Noted; cultures differ in various countries and cities. this is one but among many posibilities	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21909	74	43	74	44	These strategies are now replacing food imports, by promoting short supply chains and thus reducing the carbon impact. Some developed countries have developed labels indicating the carbon cost and distance traveled on products.	Noted; the reason the chapter discusses urban systems beyond jurisdictions	Government of France	Ministère de la Transition écologique et solidaire	France
82853	74	44	74	44	The emissions reduction potential of urban agriculture is debated. It may be less efficient in transportation-related emissions than conventional agriculture, because of the loss of economies of scale that come with larger production, processing, storage, and distribution systems. It is also highly dependent on what type of urban agriculture operation is being considered - outdoor gardens and farms with no climate-controlled conditions produce fewer emissions than heated greenhouses or rooftop and building-integrated facilities. The article cited by De La Sota et al demonstrate a potential mitigation potential associated with one type of urban agriculture, but the study examined carbon sequestration/uptake compared to emissions emitted in different urban forestry/ag land uses, and did not compare urban food production to other conventional forms of food production (and thus did not necessarily demonstrate "reduction emissions associated with the waste and transportation of food").	Noted	Raychel Santo	Johns Hopkins Center for a Livable Future	United States of America
82855	74	45	74	47	I don't understand what this sentence means.	Editorial. Noted	Raychel Santo	Johns Hopkins Center for a Livable Future	United States of America
82857	74	45	75	2	It appears that the systematic review cited was focused on 8 cities in Africa. The practice and impacts of urban agriculture differ significantly depending on whether you're considering it in the context of developing or developed countries. (see Mok, H.F., Williamson, V.G., Grove, J.R., Burry, K., Barker, S.F., Hamilton, A.J., 2014. Strawberry fields forever? Urban agriculture in developed countries: a review. Agron. Sustainable Dev. 34 (1), 21–43. vs. Poulsen, M.N., McNab, P.R., Clayton, M.L., Neff, R.A., 2015. A systematic review of urban agriculture and food security impacts in low-income countries. Food Policy 55, 131–146.)	Accepted	Raychel Santo	Johns Hopkins Center for a Livable Future	United States of America
82869	74	45	75	2	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 social, economic, health, and climate implications of urban agriculture vary significantly based on what forms are being discussed. The former version of chapter 12.4 (from 2020) covered some of these differences but the current version has no reference to urban agriculture whatsoever. It might be worth clarifying the differential impacts of different forms of urban agriculture in this section now (see that old draft, if possible?).	Noted; we assess literature on mitigation and do not go into typologies of urban agriculture	Raychel Santo	Johns Hopkins Center for a Livable Future	United States of America
74949	74		74		Consider Food systems strategies -Nairobi is an example having developed a Food Systems Strategy	Noted	Government of Kenya	Kenya Meteorological Service	Kenya
70055	75	4	75	4	Item 8.4.5.3 is very small in view of the importance that water supply represents, not only in large cities, but also in the interior regions. Many cities depend on the climate (rain or snow melt) for their water supply which can be a serious problem in a climate change scenario. It is necessary to consider new sources of supply, such as the reuse of water (whether on a domestic scale, on an industrial or municipal scale) or the use of groundwater. The capture of rainwater for use in the floor cleaning processes, after a brief and simple treatment, can help to lower flooding and reduce the demand for treated water. It is important to emphasize the climate forecasts to better predict the behavior of the climate over the next seasons, allowing measures to be taken in advance to avoid even more difficult situations. Environmental education programs and public information for the population should be encouraged, showing the real situation of storage systems (such as dams), how to reduce water consumption, how to privilege the more rational use of this resource and what the climatic prognosis points out. Very respectfully, I would like to make it clear that there are several options that go far beyond reducing bath time, diminishing water pressure or turning off the taps. This must be strongly considered in promoting real water security in a climate change situation. An IPCC report cannot fail to address these possibilities.	Accepted. The text is clarified and contextualized in socio-behavioral aspects.	PEDRO CORTES	University of Sao Paulo - USP	Brazil

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70205	75	4	75	4	Item 8.4.5.3 is very small in view of the importance that water supply represents, not only in large cities, but also in the interior regions. Many cities depend on the climate (rain or snow melt) for their water supply which can be a serious problem in a climate change scenario. It is necessary to consider new sources of supply, such as the aforementioned reuse or the use of groundwater (whether on a domestic scale, on an industrial or municipal scale). The capture of rainwater for use in the floor cleaning processes, after a brief and simple treatment, can help to lower flooding and reduce the demand for treated water. It is important to emphasize the climate forecasts to better predict the behavior of the climate over the next seasons, allowing measures to be taken in advance to avoid even more difficult situations. Environmental education programs and public information for the population should be encouraged, showing the real situation of storage systems (such as dams), how to reduce water consumption, how to privilege the more rational use of this resource and what the climatic prognosis points out. Very respectfully, I would like to make it clear that there are several options that go far beyond reducing bath time, diminishing water pressure or turning off the taps. This must be strongly considered in promoting real water security in a climate change situation. An IPCC report cannot fail to address these possibilities.Item 8.4.5.3 is very small in view of the importance that water supply represents, not only in large cities, but also in the interior regions. Many cities depend on the climate (rain or snow melt) for their water supply which can be a serious problem in a climate change scenario. It is necessary to consider new sources of supply, such as the aforementioned reuse or the use of groundwater (whether on a domestic scale, on an industrial or municipal scale). The capture of rainwater for use in the floor cleaning processes, after a brief and simple treatment, can help to lower flooding and reduce the demand for treated water. It is important to emphasize the climate forecasts to better predict the behavior of the climate over the next seasons, allowing measures to be taken in advance to avoid even more difficult situations. Environmental education programs and public information for the population should be encouraged, showing the real situation of storage systems (such as dams), how to reduce water consumption, how to privilege the more rational use of this resource and what the climatic prognosis points out.	Accepted. The text is clarified and contextualized in socio-behavioral aspects.	PEDRO CORTES	University of Sao Paulo - USP	Brazil
4543	75	4	75	9	Add refernce: Nair Rekha .S ,Bharat A, Manu G. Nair (2013), Impact of climate change on water availability : Case study of a small coastal town in India, Journa of water and climate change (by IWA Publishing), Vol. 4 , No. 2 , 2013 , pp 146 – 159, ISSN: 2040-2244	The reference is a self-citation while the content of the reference is taken into account.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4545	75	4	75	9	Add refernce: Bharat A, Sharma D (2007), Urban Poor and Access to Water- Role of Stakeholders and Beneficiaries, Book entitled, Urban Planning and Environment : Strategies and Challenges" Ed. Laxmi Vyas, Macmilan India	The reference is a self-citation while the content of the reference is taken into account.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
49623	75	4	75	9	Notes on, Integrated Water Resources Management (IWRM) can be included. Land-use management along water bodies. Impact of point and non-point sourc of water pollution can be discussed. Approaches relating to Urban Rural Water Linkage (URWL) can be included.	Taken into account.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
21911	75	7	75	9	There are also links between rural and urban territories in relation to energy. Rural territories have an important potential for the production of renewable energies, thanks to the space and natural resources at their disposal. On the other hand, reducing energy consumption is more difficult here: in these sparsely populated territories with limited mobility services, the inhabitants are very dependent on the car to get around. Conversely, urban territories have a strong potential for reducing energy consumption and a potential for the development of renewable energies that is more difficult to implement. Cooperation between urban and rural territories can be built up, within the framework of projects based on wood energy. We can refer to Transitions, Accélérer la transition énergétique par les coopérations urbain-rural : passez à l'action, 2019, 21 p.	This aspect of urban-rural linkages is relevant while potentially more relevant for different illustrative pathways. The suggestion is taken into account.	Government of France	Ministère de la Transition écologique et solidaire	France
60661	75	7	75	9	This is yet another anecdotal example. The experience from reductions in water use in countries experiencing drought conditions has shown reduction due to behavioral change are more likely to be 5-15% only. See for example: https://www.ideas42.org/wp-content/uploads/2015/04/Belen-Paper-Final.pdf	Taken into account. The suggested reference is relevant while based on a randomized evaluation in Costa Rica.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
4547	75	10	77	3	Add refernce: Bharat A, Chandan C (1997/ 2001), Urban governance for sustainable Development CAP Newsletter Vol. 9, June 03 page 13, www.commonwealth-planners.org_Governance_For_Sustainable_Development.pdf (ResearchGate)	Rejected. This reference is very old, and we need to rely heavily on post-2014 sources.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
21913	75	43	75	45	It also depends on the training of officials and technicians from subnational governments, who often do not have access to planning and environmental techniques, especially in developing countries.	Accepted. Added language to acknowledge this. Will need citation.	Government of France	Ministère de la Transition écologique et solidaire	France
74951	75		75		Consider innovative approaches in cities like Nairobi embracing web based applications to meet demand and supply challenges as well as water availability issues which may strain other secoral interventions	Noted. We are limited for space, but will reference boxes in other chapters. Please also see WGII Ch6 on cities and adaptation and impacts, which has several subsections dedicated to case studies.	Government of Kenya	Kenya Meteorological Service	Kenya
74953	75		76		Consider innstitutional arrangements under the CC Act and NCCAP II strengthening both institutional mechanisms and policy/strategic instruments especially regading local level interventions- this includes the Climate Change Directorate, Climate Change Units, Climate Change Council etc	Noted. We are limited for space, but will reference boxes in other chapters. Please also see WGII Ch6 on cities and adaptation and impacts, which has several subsections dedicated to case studies.	Government of Kenya	Kenya Meteorological Service	Kenya
72029	76	10	76	10	It is not clear what it is "Effective Governance" in this context. Efficiency is a ratio, so how it can be measured it is efficient or not efficient. What kind of indicator it is, defining what is Effective and what is Non Effective governance?	Accepted. Delete "effective" and rewrite to convey how governance acts to support and enable climate change mitigation action.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
21915	76	16	76	16	We suggest to add "and applied" after "ultimate made".	Accepted. Added.	Government of France	Ministère de la Transition écologique et solidaire	France
70085	76	18	76	24	It may need to clearly define the concept of multilevel governance and explain its vertical and horizontal dimentions for climate change. Betsill and Bulkeley (2006: 141) argue that "it is only by taking a multilevel perspective that we can fully capture the social, political, and economic processes that shape global environmental governance" because "traditional approaches to international relations –regime theory and transnational networks- offer limited conceptual space for analyzing such networks" like the CCP program, a transnational network of municipal governments, which is "simultaneously global and local, state and nonstate." They add that "these (traditional) approaches obscure how the governance of global climate change takes place through processes and institutions operating at and between different levels and forms of authority." Reference: Betsill, Michele M. and Harriet Bulkeley (2006) Cities and the Multilevel Governance of Global Climate Change. Global Environment 12: 141-159.	Noted. AR6 does offer a definition in the Glossary and we are limited in space and want to balance detail with accessibility	Sang-Min Han	Hallym University	Republic of Korea
47863	76	25	76	33	The section of "Multi-level governance" presents the roles of various vertical and horizontal linkages in enabling urban mitigation actions. The examples listed in this part might be limited to the frontrunner cities in developed regions and focusing on the bottom-up approach by cities to expand activities to a large scale. Suggesting to include the research on this topic in developing regions with other patterns and insights. For example, upper-level government's support might be an essential driver for local mitigation actions (Bai et al., 2009, 2010). Also, the recent research identifies a nested structure for innovative policy practices with a strong vertical linkage between the central and the local governments (Peng and Bai, 2018). This governance structure can facilitate two layers of experiments for policy learning. In addition to the bottom-up manner presented in this paragraph, the examples of top-down support or two-way interactio across government levels in a vertical linkage, which are reported in the literature, might be considered to include. Bai, X., Wieczorek, A.J., Kaneko, S., Lisson, S., Contreras, A., 2009. Enabling sustainability transitions in Asia: the importance of vertical and horizontal linkages. Technological Forecasting and Social Change 76(2), 255-266.; Bai, X., Roberts, B., Chen, J., 2010. Urban sustainability experiments in Asia: patterns and pathways. environmental science & policy 13(4), 312-325.; Peng, Y., Bai, X., 2018. Experimenting towards a low-carbon city: Policy evolution and nested structure of innovation. Journal of Cleaner Production 174, 201-212.	Partially accepted. We will cite 2018 article - though other sources are out of date. We also need to balance offering a more accessible, practical view of subnational governance with what the academic literature says.	Yuan Peng	The Australian National University	Australia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
21917	76	27	76	27	A further type of upscaling influence that might be mentioned is the capacity of some local authorities to lobby national governments for regulatory or policy changes which may lead to more substantive objectives and actions on a wider scale.	Noted. We do make mention of this in paragraph 3 of 8.5.1.	Government of France	Ministère de la Transition écologique et solidaire	France
21919	76	32	76	34	The education factor is also predominant here, as many local governments have little awareness of the effects of climate change, have few qualified staff, and have more trivial concerns.	Noted. Politically sensitive. We do make mention of the importance of capacity in governance.	Government of France	Ministère de la Transition écologique et solidaire	France
65129	77	4	77	4	The introduction of this section, 8.5.2. Urban Climate Networks, gives the impression that this section will highlight the role of subnational governments. The second paragraph includes insights from municipalities as well, and the third paragraph is back to discussing subnational governments. There needs to be more clarity in case this section is intended to focus on just one type of 'Urban Climate Networks'. Can also consider renaming the section to 'Urban Climate Networks' instead.	Noted. Will help clarify that "subnational governments" include cities/municipalities.	Karishma Asarpota	ICLEI World Secretariat	Germany
65131	77	8	77	8	GCoM is an initiative for cities and not regional or subnational governments. Other city networks that are at par with GCoM are C40 Cities and ICLEI. Please include these as a section on Urban Climate Networks in an IPCC report needs to be inclusive and cannot ignore major city networks working in this space.	Accepted; these are also mentioned in 8.1. Though we cannot mention every network.	Karishma Asarpota	ICLEI World Secretariat	Germany
70087	77	36	77	40	ICLEI and C40 Cities and their climate actions in both mitigation and adaptation should be also in focus as main transnational municipal networks (TMNs). Wh international climate negotiations are facing difficulties and sometimes experiencing failures in the process of reaching common agreements for climate actio cities are expected to take a more active role in tackling climate change at both local and international levels by strengthening their climate cooperation with the TMNs and other international networks of local governments beyond their territorial boundaries.	Noted. We need to be careful of being policy perscriptive re: the role of cities relative to national governments.	Sang-Min Han	Hallym University	Republic of Korea
74955	77		77		Consider including specific interventions at city level including C40 cities in the African and Nairobi context in particular GCOM Sub Saharan Africa focusing on Energy plans. Others include C40 Cities, ICLEI,Cities Alliance, 100 Cities etc	Noted. Unfortunately, we have very limited space to discuss case studies in our chapter, though we do include some. WGII Ch 6 does this well.	Government of Kenya	Kenya Meteorological Service	Kenya
65133	78	2	78	2	Figure 8.25 : There is a second conclusion that can also be drawn from this figure. The figure also shows the difference in cities and regions participating in transnational climate initiatives per region. For example, in Asia Pacific and North America there is more participation from regional governments, whereas in the rest of the world cities play a bigger role. As this section seems to focus on both - subnational governments climate networks and city climate networks - a conclusion about the participation of cities in climate networks can also be discussed to make this section more rounded.	This figure has been removed for the FGD	Karishma Asarpota	ICLEI World Secretariat	Germany
21921	78	5	78	5	Funding does not necessarily come from public funds. On the other hand, many initiatives do not require significant investments. This is the case, for example, with recycling actions which can come from private initiatives and generate profits. It is important to involve private and public in the financing of mitigation actions.	Decline - We discuss both public and private funding needs. Reject, Solutions that do not require much investments are not much debatable in this section. There is some concensus about significant funding gaps in urban areas to be filled by both public and private sources.	Government of France	Ministère de la Transition écologique et solidaire	France
66951	78	5	79	19	The section would benefit from a split up of where money comes from for urban mitigation 1) own city resources; 2) partnerships with private actors; 3) money from international development banks, national banks, etc. And then discuss the challenges cities face. There is also a forthcoming report from CCFLA on urban climate finance which will be incredibly helpful to improve this section.	Partially accpeted by adding CCFLA (2021)	Lea Ranalder	REN21	France
7499	78	5	80	19	This section should reflect on the magnitude of financial support required	Accepted and revised with data from CCLFA 2015 and 2021	Debra Roberts	EThekwini Municipality	South Africa
47865	78	5	80	19	This section discusses the importance of financial mechanisms in enabling urban mitigation. I would like to suggest one more point to be considered under this topic. The research (Colenbrander et al., 2009) indicates a compelling economic case for mitigation in cities; however, there are barriers for exploiting these opportunities, including the poor provision of information, transaction costs, and capacity deficits. So building up institutions for overcoming these barriers could enable the adoption/investment of low-carbon measures. Recent research on the Shanghai case (Peng and Bai,2020) shows that a well-designed, city-level direct-funding scheme can not only reduce carbon but also play a catalytic role in driving a series of institutional changes by enabling and enhancing cooperation across numerous government units and engaging other actors for their contributions. In short, a financial mechanism for mitigation may have flow-on effects on other aspects of a city from a systems perspective. As stated in the introduction part of this chapter, the systems approach might be preferred when studying and practicing climate mitigation in cities. Colenbrander, S., Sudmant, A.H., Gouldson, A., Albuquerque, I.R.d., McAnulla, F., Sousa, Y.O.d., 2017. The economics of climate mitigation: exploring the relative significance of the incentives for and barriers to low-carbon investment in urban areas. Urbanisation 2, 38e58. Peng, Y., Bai, X., 2020. Financing urban low-carbon transition: The catalytic role of a city-level special fund in shanghai. Journal of Cleaner Production 282, 124514.	Decline - We already discuss the institutuional capacity-related barriers etc in other and following sections. Also, self-citation is not encouranged in IPCC	Yuan Peng	The Australian National University	Australia
79277	78	5	80	19	Governments can generate revenues to help finance urban climate mitigation in ways that also help reduce climate emissions through increased fuel taxes, and more efficient road and parking pricing. In most urban areas there are numberous on-street parking spaces per vehicle, and these are mostly unpriced. Expanding when and where parking is priced could generate hundreds of dollars annually per vehicle while encouraging people to reduce their automobile ownership and use. Similalry, efficient road pricing can generate revenue and reduce traffic congestion. This also tends to achieve equity goals, including horizontal equity (vehicle ownership and use is no longer subsidized by people who don't drive), and since automobile ownership tends to increase with income, charging for parking and using the revenue to finance more affordable and resource-efficient modes tends to increase vertical equity (it benefits disadvantaged groups). See: * Francis Ostermeijer, Hans RA Koster and Jos van Ommeren (2019), "Residential Parking Costs and Car Ownership: Implications for Parking Policy and Automated Vehicles," Regional Science and Urban Economics (https://doi.org/10.1016/j.regsciurbeco.2019.05.005); at www.sciencedirect.com/science/article/pii/S0166046219300237. * Paul Barter (2016), On-Street Parking Management: An International Tool-kit, Sustainable Urban Transportation Technical Document #14, GIZ and SUTP (www.sutp.org); at https://bit.ly/2JyHJt7.	Decline -The suggestion is too transport-sector specific. We see similar fiscussion in the transport chapter. In addtion, those transport-sector financing (cogestion pricing etc) was already discussed in AR5	TODD LITMAN	Victoria Transport Policy Institute	Canada
7935	78	6	78	6	I wonder whether this statement refers to a"business as usual" approach. Cities contain aound 15% less infrastructure volume per capita than non-urban areas. To move towards decarbonisation the "model of infrastructure development" MUST change / be different in the future, with much less (heavy) infrastructures and more rational/optimised use of space / "light" technologies.	Accepted and Revisded. It is actually low carbon and resilient scenario	Rocco De Miglio	Energy analyst and modeller	Italy
65205	78	7	78	7	In section 8.5.3 it would be helpful to have a reference for the statement "More than 70% of the low-carbon infrastructure will concentrate in urban areas".	Accepted and Revisded with a reference (CCFLA, 2015)	Karishma Asarpota	ICLEI World Secretariat	Germany
19865	78	25	78	25	Insert after "... and Cook 2019)": "Some cities, mostly in Latin America have been able to access revenues from international carbon market mechanisms like the Clean Development Mechanism (CDM). 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)." Reason: International carbon markets have provided significant revenues for mitigation in some cities, but not in others. New reference: Sippel, Maike; 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	Decline - It is questionable if the potential of CDM should be discussed in this "urban" chapter. We decided to leave the potential and issue of CDM to investment and finance chapter (which is not limited to urabn systems)	Axel Michaelowa	University of Zurich	Switzerland
65207	78	26	78	28	Section 8.5.3 "Indeed, 75% of the global finance for both climate change mitigation and adaptation in 2013 took the form of commercial financing (e.g., balance sheets, commercial-rate loans, and equity), while 25% came from the form of concessionary financing". The data supporting this statement is from 2013, it is recommended to provide latest data available.	Accepted and revised with data from CPI 2019 for Years 2017/2018	Karishma Asarpota	ICLEI World Secretariat	Germany
74957	78		80		Consider including local mechanisms being supported by National governments example in Kenya the National Treasury is supporting countes and cities by extension on financing locally led climate actions, GCF accredited agencies and climate change funding options under the CC Act	Decline -It is questionable if the examle should be discussed in this "urban" chapter. We decided to leave many other methods to investment and finance chapter (which is not limited to urabn systems)	Government of Kenya	Kenya Meteorological Service	Kenya

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
65209	79	7	79	9	Section 8.5.3 - "While green municipal bonds account for a very small share of the broader $3.7 trillion bond market, the scale is predicted to grow further in emerging economies over the coming years." This information is irregular. As per the International Capital Market Association, August 2020- the overall size of the global bond markets in terms of USD equivalent notional outstanding, is approximately $128.3 trillion.This consists of $87.5 trillion SSA bonds (68%) and $40.9 trillion corporate bonds (32%), and the The Forbes, Feb 2021 resorts says that Green bond market will reach $1 trillion in 2021. As far as $3.7 trillion bond market, information is concerned- in my research I found that this data belongs to the Reuters, 2013 saying "the U.S municipal bond market grows to $3.7 trillion in first quarter". Please check the references below. https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/Secondary-Markets/bond-market-size/ ; https://www.forbes.com/sites/emanuelabarbiroglio/2020/09/02/green-bond-market-will-reach-1-trillion-with-german-new-issuance/ ; https://www.reuters.com/article/us-usa-municipals-q1-idUSKBN0OR27A20150611	Accepted and revisded with a reference (CCFLA, 2015)	Karishma Asarpota	ICLEI World Secretariat	Germany
72031	79	26	79	27	International Financial Institutions tends to finance mostly big projects as the work for them is the same to provide a 10 mln Eur or 100 mln. Eur. There are many good small scale projects, which are not under FI interest. So cities usually seeks for small scale projects due to a generated revenue and overall city debt potential, FI seeks for big projects 100-500 mln Eur. Not always this demand-supply gets to the same point.	Decline -This commes is a bit off topic. We point out the limitation of green bond to finance small projects.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
65211	79	35	79	37	Section : 8.5.3 " In recent years, there has been scope to apply not only user-based but also land-based funding instruments for the recovery of upfront capital costs." this information would make more sense if provided by some examples of user-based but also land-based funding instruments.	Decline - The space for this subsection is limited to extend such examples. Also, the next paragraphs list up some of the major land-based finance instruments	Karishma Asarpota	ICLEI World Secretariat	Germany
10725	80	1	80	4	70% of world population lacking access to formal land titles : this seems a very high percentage. References are needed.	Partially accepted. The sentence is deleted because the original number from the World Bank is less formal.	Philippe Waldteufel	CNRS	France
21923	80	20	80	20	About Section 8.5.4 Barriers and opportunities Connection with just transition and democratic co-benefits should be underlined.	Accepted	Government of France	Ministère de la Transition écologique et solidaire	France
52309	80	20	80	20	The section called "Barriers and opportunities" should be the last section.	Accepted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52321	80	21	80	29	This section is too shallow, and it needs to address in a more comprehensive way the barriers and opportunities. This paragraph does not explain the rationale behind barriers and opportunities.	Accepted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
7501	80	30			Section 8.6 has some useful pointers to solutions options but these are outlined in a generalised way and could benefit from some quantification of the scale the opportunity and specific case studies to show the usefulness of various interventions.	points well taken and appreciated. partially addressed in the figure that is newly added. For space limits, no cases are to be aadded.	Debra Roberts	EThekwini Municipality	South Africa
65237	80	30	80	30	In the chapter Integrating sectors, strategies, and innovations, the authors talk about the process based innovation in the different sectors of the policy engagement. It would be helpful if they describe the process based innovation because there are three types of innovations; Business model innovation, process based innovation and product innovation. They described how process based innovation can be applied but didn't elaborate what process based innovation is.	decline: suggestions are valid but they are sectoral issues to be addressed in sectoral chapters.	Karishma Asarpota	ICLEI World Secretariat	Germany
83679	80	30	82	9	Keiner et al. (https://www.sciencedirect.com/science/article/pii/S0038092X19304281) have shown for all countries globally a micro-sector integration and pointing out the high value of residential PV solutions in combination with electricity based heat (where required) and cooling (as part of the load curve for air conditioning), battery-electric vehicles and balanced with batteries for least cost solutions. This has best chances to become the default design in urban environments, as a key local energy resource and perfect match of resources and demand in energetic dense environments	decline: good literature but the issue raised is linked to the buildings chapter.	Christian Breyer	LUT University	Finland
10727	80	31	80	38	Considering how fundamental this issue is, it is a pity that one has to wait until page 80 to adress sector integration.	Appreciated.	Philippe Waldteufel	CNRS	France
21925	80	36	80	38	About "If all the urban functions are mixed or nearby spatially, zero-transport emissions would be the natural case as the demand for automobile transport can be zero." What is the evidence for this? Functional mix does not imply, for example, that people live close to their workplace. The cost of land is often a major barrier, even when there is functional, and sometimes also social and demographic, mix. This point should be nuanced or further documented.	Accepted. Add at the end of theparagraph: A good case in illustration is university campus in which many functions and services are located within walking distance.	Government of France	Ministère de la Transition écologique et solidaire	France
21927	80	36	80	38	This hypothesis of zero transport through functional mix, not observed in current cities, would have to overcome a "desire for a minimum commuting time" estimated at 20 minutes in the literature (Mokhtarian, Patricia L., et Ilan Salomon. « How derived is the demand for travel? Some conceptual and measurement considerations ». Transportation research part A: Policy and practice 35, n o 8 (2001): 695-719.)	Partially accepted. see treatment above (907).	Government of France	Ministère de la Transition écologique et solidaire	France
60663	80	37	80	38	Not really: Cities will continue to rely on inputs from their hinterland and far beyond, from everything from food to inputs of building materials and manufacturing, even if all urban functions are mixed spatially. Also, access to some services, such as hospitals, will continue to require personal mobility.	Accpted: after zero, add minimum.	Evyatar Erell	Ben-Gurion University of the Negev	Israel
21929	81	6	81	9	"Systematic consideration of urban spatial planning and urban forms such as polycentric urban regions and rational urban population density is essential not only for liveability but also for climate neutrality as it aims to shorten commuting distances and is able to make use of NBS for energy and resilience." This statement must be further clarified. Sometimes, a short physical distance can mean a significant amount of time or cost to travel. There are multiple factors that influence commuting, mode of transport used, access, etc.	Decline. reason: the counter arguments in the comment does not have a clear explanation.	Government of France	Ministère de la Transition écologique et solidaire	France
21931	81	11	81	12	About "how urban renewal and design can contribute to carbon neutrality (Mi et al. 2019)." This point is essential, especially in European cities where historical legacies are important and where urban renewal operations, both in the city centres and inner suburbs, create enormous challenges.	thanks, agreed.	Government of France	Ministère de la Transition écologique et solidaire	France
21933	81	20	81	20	It seems that a distinction between megacities and other types of cities is missing in this analysis ("the context of urban areas" p81 l20). Indeed, the stakes around small, medium and intermediate cities are very high. This is where urban sprawl and material and energy consumption are concentrated. Metabolic indicators are much higher there than in the megalopolises, which are already heavily built-up. These are also cities that have close relations with their hinterland, but are losing them in a global dynamic of metabolic outsourcing (see Bahers, Barles, Durand, 2019, Urban Metabolism of Intermediate Cities: The Material Flow Analysis, Hinterlands and the Logistics-Hub Function of Rennes and Le Mans (France). Journal of Industrial Ecology, Wiley, 2018, 23 (3), pp.686-698).	Taken into account. The suggested reference emphasizes intermediate cities and in particular, their territorial metabolism, interaction with their hinterlands, and their logistics-hub function.	Government of France	Ministère de la Transition écologique et solidaire	France
3497	81	26	81	26	Please, add the following sentence after line 26: " Furthermore, 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Reject. Options to reduce cement and concrete emissions is addressed in Chapter 11 on Industry.	Miguel Angel Sanjuán	IECA	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10387	81	26	81	26	Please, add the following sentence after line 26: " Furthermore, 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Reject. Options to reduce cement and concrete emissions is addressed in Chapter 11 on Industry.	Aniceto Zaragoza	Oficemen	Spain
11543	81	26	81	26	Please, add the following sentence after line 26: " Furthermore, 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. 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. CEMBUREAU 2020. https://lowcarboneconomy.cembureau.eu/5-years-on/the-5c-approach/recarbonation/	Reject. Options to reduce cement and concrete emissions is addressed in Chapter 11 on Industry.	PEDRO MORA PERIS	UNIVERSITY	Spain
4549	82	10	82	10	add discussion to 'established Urban settlement'	Accepted.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
52313	82	10	82	10	Why is the word 'established' in italic? Does it have any special meaning, which has not been reflected in the discussion?	Accepted. The font of all text is standardized.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
7519	82	10	82	44	Urban road pricing - which is not mentiioned - should be indicated as an effecrive policy measure to reduce urban emissions, quoting relevant literature available on London, Stockholm and Milan.	Accepted.	Edoardo Croci	Bocconi University	Italy
49625	82	11	82	18	There are seven strategies mentioned in context with an existing urban settlement.Sources for these strategies are missing and needs to be included since it talks about established opportunities.	Accepted. The strategies that are mentioned in these lines are reinforced and clarified with a new figure.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
4081	82	19	82	20	An addition is proposed to add more precision, context and perspective. Addition in red System-wide energy savings and emission reductions for low-carbon urban development is widely recognised to require both behavioural and structural changes (Zhang and Li 2017). Cities across low income to high income groups are expected to significantly benefit from such planning, particularly megacities where the energy demand is significantly higher (Allam, 2020) REF: https://www.sciencedirect.com/science/article/abs/pii/S2210670719303130	The suggested reference focuses on rapidly urbanizing megacities considering energy planning and urban form. Similar references are also taken into account.	Zaheer Allam	Deakin University	Mauritius
1761	82	21	82	28	This article is relevent to this section. You can review. Arfanuzzaman, M. 2021. Big data for smart cities and inclusive growth. In: Bears, R. C. The Palgrave Encyclopedia of Urban and Regional Futures	Similar references on big data applications are taken into account.	Md Arfan Uzzaman	FAO	Bangladesh
24601	82	25	82	31	The potential of cross-sector synergies are substantial and a coordinated approach is necessary. However, a system approach is needed, because the gains in one sector may show up as losses in another sector. For city-wide mitigation to be successful it is absolutely necessary to quantify these interrelations at the societal system level, which for many actors e.g. urban utility companies is very difficult today, and even for the municipalities or owners of the utilities. This is where new methods including modelling and neural networks (artificial intelligence) is extremely useful for capturing both gains and losses at system level. See e.g. Golzar, Martin and Nilsson (2020) https://doi.org/10.3390/su12166386. Suggested addition: "System approaches are necessary where cross-sector synergies can be quantified, where for instance artifical intelligence and system modelling can be very useful (Golzar et al 2020)."	Taken into account. The suggested reference is relevant and focuses on forecasting for recovering thermal energ from wastewater in urban settings. System level analysis and trade-offs are supported with similar references.	David Nilsson	KTH Royal Institute of Technology	Sweden
79279	82	27	82	28	Change "expanding public transport," to "expanding active and public transport" in order to recognize the important roles that walking and bicycling play in increasing urban transport efficiency.	Accepted.	TODD LITMAN	Victoria Transport Policy Institute	Canada
14991	82	29	82	29	The following red text with the reference literatures should be added to the draft text; ------- management (Lin et al. 2018). "Furthermore, concrete pavement can improve a fuel efficiency of vehicles comparing to asphalt pavement(T.Yoshimoto)*1 and urban concrete structures such as building can contribute to a carbon sink source to take up CO2 from the atmosphere during the life(Shinneider 2019).*2" *1: EFFECT OF PAVEMENT TYPE ON ROLLING RESISTANCE AND FUEL CONSUNPTION OF HEAVY-DUTY VEHICLES. 11th International Symposium on Concrete Roads (2010) *2: The cement industry on the way to a low-carbon future. Cem. Concr. Res., 124, https://doi.org/10.1016/j.cemconres.2019.105792.	Rejected. Options to reduce cement and concrete emissions is addressed in Chapter 11 on Industry.	NAOKI AOKI	Japan Cement Association	Japan
2223	82	39	82	39	"12,000 thousand" is this twelve thousand or twelve million	Updated to 12,000 with extra word deleted.	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
49627	82	42	82	43	The various regulatory measures and provisions need more elaboration in terms of its contents. Statement is unclear in terms of content and the concluding statement is unclear.	Accepted. Text is rewritten and contextualized.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
4551	82	45	82	45	add discussion to 'Emerging Urban settlement'	Accepted. Text is rewritten and contextualized.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
52315	82	45	82	45	Why is the word 'emerging' in italic? Does it have any special meaning, which has not been reflected in the discussion?	Accepted. The font of all text is standardized.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
30505	82	45	83	21	We propose, please include urban conservation and adaptive reuse as mitigation opportunities for emerging urban settlements. We hereby present a case of serious abandonment of old buildings in historic urban cores in emerging towns and cities in Malaysia as an example to support our point.	Partially accepted. Mitigation measures that avoid the need for embodied energy spending through re-using the existing building stock are relevant.	Kum Weng Yong	KW Yong Architect (Professional architect practice)	Malaysia
43017	82	45	83	21	We wish to highlight the serious problem of many abandoned old buildings in historic urban cores in emerging towns and cities in developing countries, for example Malaysia. We propose, for the AR6 to note this point as an important mitigation opportunity, i.e. to re-use such old buildings in wise manner, relevant in the context of emerging urban settlements. This can encourage reducing the urban carbon lock-in (as many new developments are not needed if we carefully plan to re-use the existing building stock and not abandon them), and improving urban walkability (because historic urban cores are usually better planned than new profit-seeking, car-oriented sprawl development).	Partially accepted. Mitigation measures that avoid the need for embodied energy spending through re-using the existing building stock are relevant.	Doris Toe	Universiti Teknologi Malaysia	Malaysia
65219	83	1	83	5	These statements assume that cities can be planned in advance which in developing contexts is not so easy and should recognise that while for some the magnitude or pace of urbanisation may be a surge, for others this may be slower and therefore easier to plan	Accepted. The pace of urbanization does present challenges to urban planning while the outcome depends on th way that this process is managed. It does not necessarily have to be the case that a higher pace of urbanization leads to inefficient urban areas. For example, two scenarios both with rapid urbanization can have very different outcomes.	Karishma Asarpota	ICLEI World Secretariat	Germany

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49629	83	1	83	9	There could be more clarity and examples on the statement which says there are more ways a developing country can be climate neutral.	Accepted. Different development contexts are emphasized.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65221	83	8	83	9	Not sure how this 'decoupling' accounts for existing infrastructure lock-in and investments already made in polluting infrastructure unless it includes retrofitting measures?	Taken into account. We acknowledge the committed emissions of existing urban infrastructure while further providing evidence of the mitigation measures that applies to different types of cities.	Karishma Asarpota	ICLEI World Secretariat	Germany
49631	83	17	83	21	Conclusion could suggest more ideas and positive vision or note towards the possibilities for challenges faced by developing countries as specified in pg no. 83 line no.1-9. Conclusion could be improved rather than placing the same point already mentioned.	Accepted.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65223	83	18	83	20	This does not expand on what the 'enabling conditions' are, for example effective governance etc.	Accepted.	Karishma Asarpota	ICLEI World Secretariat	Germany
49633	83	35	83	37	The process to provide opportunitues for energy infrastructure for active and passive options should be elaborated.	Accepted. Added a phrase with examples of passive options, e.g., use of solar gain for space heating or of thermal mass to moderate indoor temperatures.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
5437	83	38	83	38	replace Renewables" by "low carbon sources"	Rejected. The aim for future scenarios is renewable sources of energy.	Michel SIMON	Retraité/ Pdt d'association	France
72033	83	40	83	40	100% Renewable Energy scenarios. The life cycle approach should be taken for the Renewabel Energy scenarious to assess the energy consumption from the beginning of the product life cycle up to the end, so to avoid a situation then to produce RE equipment/device and afer at the end of its lifecycle to demolish it (for exp wind mill, solar PV) you may consume more CO2 comparing to what you get from this device/equipment per all life cycle. Life Cycle Assessment is important approach.	Accepted. Agree with comment, see the next paragraph where the use of the life cycle approach is highlighted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74997	83				in 8.6.3 on Mitigation opportunities for future urban settlements- Discussion of reforms in zoning and building standards and materials regulations also need to be highlighted to enhance embracing of local and modern building materials and technology in meeting mitigation dreams especially in developing countries	Accepted. Added a sentence to address the issue.	Government of Kenya	Kenya Meteorological Service	Kenya
21935	84	3	84	6	The formulation of the question of "ideal urban settlements" and the response that electrification is the first and most important feature is neither clear nor explicitly justified. Is this claim supported by evidence or meant to be a general assertion?	Reject. Electrification with renewable energy sources as a major mitigation strategy is discussed in several sections in the chapter, e.g., 8.4.2, 8.4.3, and there is an entire section, 8.4.3.1 focused on electrification.	Government of France	Ministère de la Transition écologique et solidaire	France
49635	84	3	84	6	The question asked about the major features and characteristics of ideal urban setttlement should be explained in detail.	Reject. The subject is addressed from the perspective of climate change mitigation, and the characteristics and methods described are discussed throughout the chapter.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
65213	84	4	84	6	While it is well accepted in the literature that electrification for all urban services is needed in the future, the readers would appreciate if the authors back this up with references	Reject. Electrification with renewable energy sources as a major mitigation strategy is discussed in several sections in the chapter, e.g., 8.4.2, 8.4.3, and there is an entire section, 8.4.3.1 focused on electrification. n use references already cited	Karishma Asarpota	ICLEI World Secretariat	Germany
5439	84	6	84	6	replace Renewables" by "low carbon sources"	Rejected. Nuclear energy is not yet ideal.	Michel SIMON	Retraité/ Pdt d'association	France
28339	84	7	84	20	While a significant number of the studies in the bibliography of this chapter bear 'life cycle assessment' in their title, relatively little attention is offered in the paper to the methodological challenges of applying LCA at the urban scale. There isn't an agreed methodology just yet and there are many local impacts that LCA overlooks. It would be potentially useful to add in this paragraph references to the latest developments in this space, e.g. https://doi.org/10.1007/s11367-018-1467-3; https://doi.org/10.1111/jiec.12980. This would help better contextualise the mitigation opportunities for future urban settlements alongside the challenges for some of the implementation options suggested.	Reject. The sentence in text referred to the life-cycle assessment of building types, not cities--did refer to neighborhood-scale metabolic impact assessments.	Pomponi Francesco	Edinburgh Napier University	United Kingdom (of Great Britain and Northern Ireland)
4973	84	9	84	27	I would suggest to look also at LCA applied to cities which is a timely topic and to cite the following articles which are pioneering among literature in this regard "N Mirabella, K Allacker, S Sala (2019) Current trends and limitations of life cycle assessment applied to the urban scale: critical analysis and review of selected literature. The International Journal of Life Cycle Assessment 24 (7), 1174-1193" and "Susca T, Pomponi F. Heat island effects in urban life cycle assessment: Novel insights to include the effects of the urban heat island and UHI-mitigation measures in LCAfor effective policy making. Journal of Industrial Ecology. 2019;1–14."	Reject. The sentence in text referred to the life-cycle assessment of building types, not cities--did refer to neighborhood-scale metabolic impact assessments.	Tiziana Susca	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Italy
21937	84	10	84	10	It is surprising that the paragraph on"environmental impact reviews" (p84 l10) doesn't mention the Energy flow analysis or the Multi-scale Energy flow analysis which is the robust method to measure energy urban metabolism.	Reject. Thank you for the suggestion, but the one paragraph on the topic could not be all-encompassing,	Government of France	Ministère de la Transition écologique et solidaire	France
2225	84	31	84	33	References need to be in one bracket	Editorial suggestion is addressed.	Stephen Wilkinson	University of Wollongong in Dubai	United Arab Emirates
21939	84	40	84	41	This sentence is unclear and might be reformulated or further elaborated.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
49637	84	46	85	5	Statement is unclear. The readily solutions as mentioned should be provided.	Accepted.	Satyaprakas Das Das	Manipal Academy of Higher Education	India
4553	85	29	85	29	Add pt. 8.6.4 … Adaptation … including finance aspect	Rejected;The comment is not clear based on the line numbers while it is understood to require a referral to WGII Chapter 6.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
64223	86	0	86	0	need better quality figure	Accepted; High quality resolution for all figures are ensured in the FGD.	Ova Candra Dewi	Universitas Indonesia	Indonesia
21941	86	2	86	2	The text in figure impossible to read	Accepted; High quality resolution for all figures are ensured in the FGD.	Government of France	Ministère de la Transition écologique et solidaire	France
79227	87	1			Related to NBS/green infrastructure but also more broadly to mitigation strategies is the emerging issue of climate gentrification and inequality. Along with new studies in particlar focused on Florida and other jurisdictions, a good opinion piece recently published in PNAS is Anguelovski, I., Connolly, J. J., Pearsall, H., Shokry, G., Checker, M., Maantay, J., … & Roberts, J. T. (2019). Opinion: Why green "climate gentrification" threatens poor and vulnerable populations. Proceedings of the National Academy of Sciences, 116(52), 26139-26143. More generally, Section 8.7 could be given a more comprehensive treatment synthesizing gaps in knowledge from all other sections.	Noted	Martino Tran	UBC	Canada
16489	87	1	87	20	The overall report is about the role of urban systems on environmental conditions and key factors impacting the relationships. However, this part summarising gaps in knowledge is majorly focused on CIVOD-19 in relation to the urban characteristics.	Rejected; what about urbanisation scenarios, future emissions etc	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
30507	87	1	87	20	We propose, please include gaps in knowledge related to poor records of historical and heritage buildings, and low implementation of urban conservation (in developing countries).	Noted	Kum Weng Yong	KW Yong Architect (Professional architect practice)	Malaysia
43019	87	1	87	20	We propose, to include gaps in poor or no record of historical and heritage buildings, and poor urban conservation efforts in developing countries.	Noted	Doris Toe	Universiti Teknologi Malaysia	Malaysia
79281	87	1	87	20	One important knowledge gap is the degree that current policies unintentionally favor resource-inefficient development patterns and transport over more resource-efficient alternatives. For example, limits on development density and mix, regulations and tax structures that favor single-family housing over multifamily, parking minimums, transportation planning and funding that favors autmobile-oriented improvements over improvements to resource-efficient modes, and infrastructure pricing that subsidizes urban expansion over infill (or described differently, failure to efficiently price sprawl) are some examples. Research questions include: what are these planning and market distortions; what are their impacts on development patterns, travel activity and emissions; what are consumer preferences and demands regarding development and travel; how could these distortions be corrected in ways that are consistent with consumer demands and community goals; and how can policy makers communicate the full benefits and build public support for such reforms. See: * Todd Litman (2014), Analysis of Public Policies That Unintentionally Encourage and Subsidize Urban Sprawl, commissioned by LSE Cities (www.lsecities.net), for the Global Commission on the Economy and Climate (www.newclimateeconomy.net); at https://bit.ly/2QqPhzc. * Gregory H. Shill (2020), "Should Law Subsidize Driving?" University 0f Iowa Legal Studies Research Paper No. 2019-03, New York University Law Review, (http://dx.doi.org/10.2139/ssrn.3345366).	Rejected; this is discussed under lock-in	TODD LITMAN	Victoria Transport Policy Institute	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79283	87	1	87	20	Here are some other knowledge gaps that deserve further research: * How do Smart Growth policy reforms affect economic productivity, economic mobility (the chance that lower-income people become more economically successful over their lives), and local economic development. Numerous studies find that productivity and mobility tend to increase with urbanization, density, and transport sysem diversity, but policy makers and practitioners need better tools for quantifying these benefits. See: Stuart Donovan and Ian Munro (2013), Impact of Urban Form on Transport and Economic Outcomes, Research Report 513, NZ Transport Agency (www.nzta.govt.nz); at https://bit.ly/2xEsoyu. Reid Ewing, et al. (2016), "Does Urban Sprawl Hold Down Upward Mobility?" Landscape and Urban Planning, Vol. 148, April, pp. 80-88; at www.sciencedirect.com/science/article/pii/S016920461500242X. Chad Frederick and John Hans Gilderbloom (2018), "Commute Mode Diversity and Income Inequality: An Inter-Urban Analysis of 148 Midsize US Cities," International Journal of Justice and Sustainability, Vol. 23, No. 1, (https://doi.org/10.1080/13549839.2017.1385001). Chang-Tai Hsieh and Enrico Moretti (2015), Why Do Cities Matter? Local Growth and Aggregate Growth, National Bureau of Economic Research (www.nber.org); at http://bit.ly/1IIphXE. Conversely, policy makers and practitioners need better tools for optimizing Smart Growth to reflect consumer demands (the types of neighborhoods that various households prefer) and social equity goals. For example, there is good evidence that most households prefer to live in compact, walkable communities (often called 15-minute neighborhoods) where commonly-used services are easy to reach without driving. Since residents in such neighborhoods tend to produce far lower emissions than in automobile-dependent areas, serving these demands tends to reduce emissions. It would be helpful to develop tools for optimizing compact, walkable neighborhood design, and quantify the consumer benefits/welfare gains from Smart Growth policies. See: NAR (2017), National Community Preference Survey, National Association of Realtors (www.realtor.org); at www.nar.realtor/reports/nar-2017-community-preference-survey.	Partially accepted; the text is devoid of link with mitigation	TODD LITMAN	Victoria Transport Policy Institute	Canada
77115	87	1	89	37	Under knowledge gaps, no mention is made of the Urban Heat Island effect, which distorts land-based temperatures, another major error not yet corrected by IPCC.	Rejected; addressed on cross WG box	Jim O'Brien	Expert Reviewer AR6 SOD WG1	Ireland
83681	87	1	89	37	a huge gap in literature is the link of national energy transition pathways and major urban areas transitions. Global energy transition models are for from being detailed enough so that results can be shown for major urban areas as part of national transition studies. Some publications using the LUT Energy System Transition model however, have enabled such insights for the case of Iran highlighting Tehran (https://www.sciencedirect.com/science/article/pii/S0960148119309139), the case of Finland highlighting the capital area around Helsinki (https://doi.org/10.1016/j.futures.2020.102644), in a most recent report for the present largest urban area in the world Tokyo embedded in entire Japan (https://static.agora-energiewende.de/fileadmin2/Projekte/2021/2021_03_JP_2050_study/2021_LUT-Agora-REI_Renewable_pathways_Study.pdf) and a comparable report the future largest urban area in the world Delhi in the entire energy transition of India North (https://climatetrends.in/wp-content/uploads/2020/12/LUT-Report-FINAL-05-11-2020.pdf). It would be most important to get such comprehensive studies enabled on a full global resolution. As it had been possible for the listed cases, it should be possible with respective resources to get all major metropolitan regions globally investigated in full interaction with the national energy transition. This may enable breakthroughs in highly detailed global-local climate mitigation insights.	Noted	Christian Breyer	LUT University	Finland
17275	87	2	20		Citizens need to be more motivated for cities to become smart city and green city. So-called smart cities demonstrate a digital transformation in infrastructure services to deliver energy efficiency, city-wide cloud access, and better public safety to meet citizens' needs. Innovation should extend to the integrated implementation of sensor and robotics technology to manage assets and resources efficiently. These, in turn, should be extended to emergency response centres, research and technical institutions, and key business areas. It is an ideal time to drive green rings with the planning instrument and promote cities to be more self-sufficient in energy production and consumption. The objective of being green capitals can and should have the consensus and active support of local, regional and state institutions and society as a whole. All our individual and social environmental civic behaviors must be more responsible, better for the public and with the natural environment. According to a Transport & Environment study, the cruise park pollutes more, in terms of sulphur oxides, than the 260 million cars in the European automobile park. For Catholics it is a moral and ethical duty. In Laudato Si': On the Care of the Common House, the Holy Father emphasizes the spiritual roots of integral ecology. It recognizes that there is an "ecological debt" and proposes a commitment for basic Catholics, to create or join a Creation Care Team, and thus, together try to get them to pass climate standards based also on faith, and not exclusively on the development of new technologies. https://www.elsoldigital.es/lluvias-y-ciudades-carlos-ramirez-sanchez-maroto-abogado/ carlos ramirez sanchez maroto,author	Noted	carlos ramirez	AFA-ANDALUCIA	Spain
52305	87	2	87	4	At first in 8.7 'Gaps in knowledge', it is claimed that there is a huge knowledge gap between climate mitigation and urban planning. However, a lot of evidence related to mitigation in urban planning perspective has been presented in several sections in this chapter.	Rejected; the litterature does not quantify emissions and thus highly agrees but with low evidence	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
4261	87	8	87	8	potential of [the] informal sector	Noted	Lee White	Australian National University	Australia
21943	87	10	87	12	There is little Anglo-Saxon literature on this subject, but a lot in French-speaking or Spanish-speaking, which it would be necessary to synthesize. Many publications on the green economy and the renewal of urban or peri-urban agriculture, which are often very informal, the recycling of agricultural materials or urban waste in Vietnam, Peru or Egypt and the experiences of rationalization, sustainable building in Africa, urban planning in the favela of Rio, the entire informal urban transport sector in Latin America, and experiences of productive transformation, the resolution of environmental conflicts among producers of construction materials (river sand in particular), in Africa or Colombia, etc. Many experiences for which it is difficult to give an extensive bibliography.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
6149	87	13	87	15	Following literature supports the sentence of relationship between urban settlements and climate change. - https://doi.org/10.1177/2043820613513390	Accept and cite	Masanobu Kii	Kagawa university	Japan
4555	87	21	87	21	modify pt. 8.7.1 as 'Cities and Zoonotic Threats'	Rejected. The evidence we have used to develop this section is on COVID and this section has been developed in response to the recent pandemic.	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
21945	87	21	87	21	section 8.7.1. Two comments on this section: 1. The COVID-19 crisis led to social and urban planning innovations, as well as a change in representations of climate risks. A sustained attention of urban governments and inhabitants to the challenges of climate transition has arisen in some cities. The crisis has also been a time of experimentation, with, for example, the development of tactical urban planning, a demand for the relocation of agriculture and the development of short-distance circuits, etc. The crisis has also been a moment of experimentation, with, for example, the development of tactical urban planning, a demand for the relocation of agriculture and the development of short-distance circuits. The sustainability of these innovations is questionable, as is the perception of the climate risk in the post-covid phase, given the high risk of an economic, social and even political crisis. 2. The issue of the negative effects in terms of carbon footprint of digital deployment in cities should be further highlighted in this chapter. It could also be addressed for COVID. Indeed, the development of telework is seen as a positive element in reducing emissions. However, it appears that the digital shift may counter-productive: increased demand for larger homes, increased demand for single-family homes, more terminals with faster renewal, increased energy consumption. The impacts are also negative in terms of physical and mental health, intra-family violence and increased gender inequalities.	Reject. COVID and urban planning. It is not clear to what extent some of the changes, e.g., significant increases in working from home and associated decreases in work trips, as well as moves out of cities, that occured in cities during the pandemic will be lasting.	Government of France	Ministère de la Transition écologique et solidaire	France

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66953	87	22	87	47	Acknowledge that COVID-19 has had massive disruptions on public life and economic activity in cities	Revised and noted.	Lea Ranalder	REN21	France
7521	87	22	89	4	The chapter should be integrated with the most recent, regarding changes in use of public spaces and service due to Covid-19.	This has already been reflected in the beginning parts of the section. This section does not intend to cover all issues related to COVID and cities. Its focus is on the implication for climate change mitigation in cities.	Edoardo Croci	Bocconi University	Italy
66955	87	38	87	43	By the end of 2020, it has been shown that emissions have gone up again and surpassed earlier levels. Also air pollution levels have been surpassed again (because many people have shifted from public to private transport + double heating of office and homes)	This is correct. We have now acknowledge that rebound to pre-COVID trajectories has been observed.	Lea Ranalder	REN21	France
74959	87		89		Consider including the Mayoral Green and Just recovery agenda in response to the pandemic focusing on green spaces, mass transit in transport and urban air pollution and health	Mentioned in the revised version.	Government of Kenya	Kenya Meteorological Service	Kenya
65087	88	7	88	10	The authors mention the stimulus packages that some countries are implementing because of the COVID pandemic. The authors can also mention a few examples of countries whose stimulus packages include climate actions (like the EU) and some countries whose packages are postponing such actions.	Reject. Thank you. Although the topic of COVID was unavoidable, we could not cover it comprehensively.	Karishma Asarpota	ICLEI World Secretariat	Germany
5441	88	10	88	10	replace Renewables" by "low carbon sources"	We mean Renewable here	Michel SIMON	Retraité/ Pdt d'association	France
9953	88	12		19	This paragraph echoes our comment on Chapter 1 page 1-17. (While data have shown and we have learnt that behaviour, such as mobility which brings result in transportation and industry, can be changed towards more environmentally sustainable impacts, it is crucial to address how to maintain the society behaviour in such manner or to find balance between the necessity of being mobile and being static at home while taking advantage of IT in conducting daily tasks.)	Taken into account	Government of Indonesia	Ministry of Environment and Forestry	Indonesia
70057	88	17	88	17	The use of "home office" term may be considered join with the teleworking. This would make it easier to locate this type of subject when using automatic search engines.	Teleworking is the more common term	PEDRO CORTES	University of Sao Paulo - USP	Brazil
21947	88	20	88	26	This paragraph might be moved to just after the first paragraph of this section as it follows on from the discussion of density and COVID on Page 87 Lines 22-37	Agreed. para moved	Government of France	Ministère de la Transition écologique et solidaire	France
10729	88	32	88	40	True, Hamidi et al conclude that density is not a major risk factor, which if confirmed is good news for climate mitigation. At the same time, Hamidi et al stress that the SIZE of the metropolitan area is a significant risk factor. In the same spirit, it seems mandatory to get interested in the optimal range of settlement sizes when considering mitigation opportunities.	Taken into account in the revised version.	Philippe Waldteufel	CNRS	France
4083	88	41	88	44	The following is proposed in red: Cities should seize this opportunity to provide better infrastructure to further foster active transportation. This could involve measures such as expanding cycling networks and restricting street networks, to make them more pedestrian- and cycling-friendly- that will also provide other health and adaptation co benefits as discussed in Section 8.2 (Sharifi 2021). Furthermore, cities should re-evaluate resilience dimensions and their preparedness to ensure the functioning of basic urban services during times of crisis (REF A). The rapid deployment of technological infrastructures was observed in cities and across digital platforms, but the lack of standardisation of protocols across smart city networks and urban technology providers was observed and needs to be addressed to ensure that collected data can be better interpreted, leading to better informed decisions (REF B). REF A: https://www.sciencedirect.com/science/article/abs/pii/S0264837720305974?via%3Dihub REF B: https://www.mdpi.com/2227-9032/8/1/46	Noted.	Zaheer Allam	Deakin University	Mauritius
4263	88	45	88	45	should be 'significant cost-saving' not 'significance cost-saving'	Revised	Lee White	Australian National University	Australia
60665	88	45	88	45	Language editing required. Missing words?	Revised	Evyatar Erell	Ben-Gurion University of the Negev	Israel
19975	88	45	88	47	The water crisis and the COVID-19 crisis are two very different societal challenges, but both have some key characteristics in common. This offers room for solutions. See e.g., van der Voorn, T.; van den Berg, C.; Bhattacharya, P.; Quist, J., Never Waste a Crisis: Drawing First Lessons from the COVID-19 Pandemic to Tackle the Water Crisis. ACS ES&T Water 2020.https://doi.org/10.1021/acsestwater.0c00041	Taken into account in the revised version.	Tom van der Voorn	Institute of Environmental Systems Research	Netherlands
21949	89	4	89	4	Objectively, while public policies continue to praise density and the eco-metropolitan paradigm as well as zero net artificialisation, we observe in France and in all the countries of the euro zone a strong aspiration and tendency for people to return to medium and small cities and a renewed attraction for suburban and peri-urban lifestyles. Greater London is said to have lost more than 700,000 inhabitants over the last 14 months (press), and it is clear that the urban-centric model is now only attractive to certain types of population (CSP+, mainly students). Psycho-sociological studies should therefore be continued, because the rapid advent of teleworking, e-shops and click and connect or be to be logistics offers have lastingly changed behaviors, including in peri-urban and rural areas.	Reject. Thank you for the comment. It is too early to tell whether this is an enduring trend, and not clear(lack of evidence) what the energy/GHG implications of such a trend would be. This trend will be important to review in 5 and 10 years to assess to what extent the increase in working from home, at least several days a week, and the implications for preferred locations within metro area become permanent trends.	Government of France	Ministère de la Transition écologique et solidaire	France
65091	89	5	89	15	The paragraph 8.7.2 titled 'Future Urban Scenarios', doesn't really talk much about the future of urban scenarios as the reader might expect from the title. Moreover, the authors might consider expanding more on the gaps, including , for example, sustainable construction, equity, behaviour and people acceptance.	agreed. Section will be expanded.	Karishma Asarpota	ICLEI World Secretariat	Germany
4557	89	5	89	5	Suggest normalisation of globaly diversed Urbanisation scenarios	changed to "Future urban emission scenarios"	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
11921	89	5	89	5	Covid has challenged the current dynamics of spatial planning; tomorrow covid or no covid big organisations are contemplating revising the system of working largely form home which has added financial benefits (by default address quality of life, health and well being as co-benefits) to organisation and workers as well and thus the on going thrust of small and medium cities urbanising fast shall continue and megacities may become stable unlike with the on going densification. It's less about covid but the pause has pushed the professionals to review, as there may be more such pandemics' in future.	Reject. Thank you for the comment. Some of the urban impacts of COVID may be lasting trends, but it is too early to tell.	Anjali Sharma	Research, Projects and Collaborative initiatives, Delhi.	India
6151	89	6	89	15	Following article reports the downscaled urban population of the SSPs. This will suppor the sentence. - Kii, M. Projecting future populations of urban agglomerations around the world and through the 21st century. npj Urban Sustain 1, 10 (2021). https://doi.org/10.1038/s42949-020-00007-5	sentence rewritten to make clear that additional study is needeed beyond the Gurney et al., 2021.	Masanobu Kii	Kagawa university	Japan
63069	89	19	89	19	Add 'Wang et al.2019' after'Mueller et al. 2020a, submitted'. Wang et al.2019. Nature Sustainability, 2: 748-754.	done	Changke WANG	National Climate Center, China Meteorological Administration	China
65233	89	30	89	33	Would be helpful to add studies covering other geographies.	We know of none.	Karishma Asarpota	ICLEI World Secretariat	Germany
52307	89	39	90	6	The Frequently Asked Questions is a repetition of the previous discussion.	Noted. Will take into account - and to some extent repition is expected as this section is a synthesis of important information presented in the chapter.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
4265	89	39	91	6	Is there a rationale between having no citations in the FAQ? Many of the statements would seem to need support	Noted/Rejected. The TSU asks that FAQs do not contain references.	Lee White	Australian National University	Australia
17793	89	41			(FAQ 8.1) first line should read "… an increasing share of global GHG emissions for urban areas."	Noted	Jonathan Lynn	IPCC	Switzerland
9331	89	44	89	45	"Take up" might be misleading. In this sentence, the term could also mean that urban areas absorb a certain amount of emissions. But if I understand correctly this is not what you mean, is it? Would "are responsible for" work instead?	Accepted. Changed to "account for"	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
46943	89		89		as a consequence of COVID, some cities has experimentally put in place the tactical urbanism. They had the chance to highlight the relationship between health, mobility and need of accessible public space, tehreby accelerating the changes within the cities themselves. Some experiences became the occasion for more structural changes. See the publication on Domus at https://www.domusweb.it/it/architettura/gallery/2020/05/14/politiche-urbane-post-lockdown-occasione-trasformazioni-radicali-urbanistica-tattica-mobilit%C3%A0-bicicletta-coronavirus.html,	Partially accepted. Although some of these temporary initiatives that Tactical Urbanism highlights may not be lasting, we have include a new section on Accessibility and the 15/20 minute city movement, which has been accelerated by COVID, and hopefully will be more lasting.	Valentina Palermo	JRC	Italy
74961	89		89		Consider including data from cites in Sub Saharan Africa that have developed emission trajectories and projected pathways	Can consider this but need reference or citation - we have not seen independent trajectories for sub-saharan africa	Government of Kenya	Kenya Meteorological Service	Kenya
65225	90	2	90	5	It would be clear for readers if the author mentioned the name of the studies/some credible source.-- "One study of 84 cities found that urban areas that utilise energy-efficiency in transport, commercial buildings, and building heating/cooling could reduce urban emissions by 36–54%—significant considering the global urban emissions share."	Noted/Rejected. The TSU asks that FAQs do not contain references.	Karishma Asarpota	ICLEI World Secretariat	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
9333	90	5	90	10	Is it possible to explain in very few words why cities can influence other scales of governance? Would it be useful to mention some of the cities networks that have formed to address climate change in this context? This rather abstract sentence might benefit from an example that illustrate what is being done already.	Noted. Some specific language added. We are limited in words we can use, re: providing examples.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
9341	90	12	90	33	I am not sure if I can find an answer to the second part of the FAQ question in the text. I thought "be best implemented" refers to the "greatest impact" in line 15. But what can be learned from the statement in line 21-22 "...and their implementation will depend on the governance and developmental context of the urban area"? I am not able to extract much specific information about the "best implementation" from the second paragraph of the text either. Can you help readers to get your message here?	Accepted. The relative potential is clarified.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
79287	90	12	90	33	This asks, "What are the most impactful options cities can take to mitigate urban emissions?" The answer cites Figure 8.22, which is unclear, and then mentions some strategies, highlighting vehicle electrification. I don't believe that this is clear or accurate. Vehicle travel reduction strategies have as much potential to reduce emissions as vehicle electrfication (in part because electric vehicle production and use have significant embodied and upstream emissions, and in part because it will take many years for them to penetrate the fleet), and vehicle travel reduction stratgies can provide large co-benefits. I suggest adding improvements to resource-efficient modes (walking, bicycling and public transit); transportation pricing reforms; Smart Growth development policies; transportation demand management (TDM) programs; and efficient building design and retrofit programs as additional policies that can provide large, cost effective emission reductions. See: Todd Litman (2021), Win-Win Transportation Emission Reduction Strategeis, Victoria Transport Policy Institute (www.vtpi.org); at www.vtpi.org/wwclimate.pdf. ICAT (2020), ICAT Toolbox: Policy Assessment Guidelines, Initiative for Climate Action Transparency (https://climateactiontransparency.org); https://bit.ly/3q8iEXn. Includes Transport Pricing Methodology; athttps://bit.ly/3iK5US5.	Accepted. The coherency of the revised figure and the text is ensured to further communicate urban transport related aspects as intended.	TODD LITMAN	Victoria Transport Policy Institute	Canada
9335	90	15	90	15	What is "the cycle of urban carbon lock-in"?	Removed "cycle."	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
9337	90	16	90	16	What is an "urban systems framework"?	Removed that termonology and expanded the language to be more accessible.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
72035	90	24	90	24	In the text the main focus is on the electricity grid, but there should be focus on electrification+district heating/cooling utilisation at the same time, so to facilitate all technologies and all kinds of energy sources.	Accepted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
9339	90	25	90	26	If "figure 8.22" is included in a different part of this chapter, then it might not be availablie to readers of the FAQ - at least as long as these are published in a separate document. I would also recommend to adjust figures for the broader audience of the FAQs.	Noted.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
11285	90	29	90	30	The concept that excessive road and parking space should be avoided should be included somewhere in this section. I suggest changing "(e.g., through low-impact dietary choices, offering walking and cycling, expanding recycling and its accessibility, etc.)." to "(e.g., through low-impact dietary choices, offering walking and cycling, avoiding excessive parking and road space for automobiles, expanding recycling and its accessibility, etc.).	Accepted the addition, and made the change in the chapter.	Eric Doherty	Ecopath Planning	Canada
5443	90	31	90	31	replace Renewables" by "low carbon sources"	Partially accepted. Low-carbon sources are not nearly as impactful as renewables.	Michel SIMON	Retraité/ Pdt d'association	France
29933	90	32	90	33	The FAQs are good in general, but this sentence can be confusing - what exactly is meant by "Without such urban-scale changes, pro-environmental behaviour can reduce individual footprints significantly" - should it not be " with" instead of "without" given what is said in the chapter about societal and larger-scale changes being necessary for individual pro-environmental behaviour to significantly reduce emissions?	Accepted. Clarified.	Government of Norway	Norwegian Environment Agency	Norway
46469	90	32	90	33	FAQ 8.2: this last sentence is very general and not necessary in order to answer the question posed. Please delete.	Accepted.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
21951	90	35	90	35	This third question might become the second question as it follows on from the first question's discussion of city emissions.	Reject. The order is set.	Government of France	Ministère de la Transition écologique et solidaire	France
9343	90	35	91	6	Can one or two sentences be added that tell readers very clearly why it is important to estimate emissions from cities (although climate change is a global problem and in view of the different approaches and uncertainties mentioned in this FAQ)?	Accepted. A sentence has been added to provide this contextual opening.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
74963	90		90		FAQ 8.2- Consider including RE mix in grid supply of electricity	Partially accepted.	Government of Kenya	Kenya Meteorological Service	Kenya
74965	90		90		FAQ 8.3- consider indicating best practice scenarios like the GPC software customized for estimating emissions in cities	Noted. We have very limited space in the FAQs. Please see section 8.4.	Government of Kenya	Kenya Meteorological Service	Kenya
65231	91	5	91	6	"Individual self-reported inventories from cities have shown chronic underestimation when compared to atmospherically-calibrated estimates." This is a strong statement with no source to really back this. Presumably one source could be the study on US cities referenced on page 89, sentences 30-33.This needs clarification. Moreover, such a strong statement should be back by studies from other parts of the world or using different estimation methods.	Noted/Rejected. The TSU asks that FAQs do not contain references, though we could mention a study in-text.	Karishma Asarpota	ICLEI World Secretariat	Germany
3501	91	6	91	6	Please, add a new paragraph in FAQ 8.2: "In addition, 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). 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). 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 8.2 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Finally, cities could prescribe the use of concretes made with carbonated recucled aggregates (Sanjuán et al 2020). This is in line with the circular economy and climatic change mitigation context. " Please, add Table 2 from reference Sanjuán et al 2020. CEMBUREAU 2020. https://lowcarboneconomy.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 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	Rejected. The reviewer is correct suggesting that cement uptakes carbon. This uptake is however is negligbly small at a city scale. Amount of carbon captured by concrete infrastructes of the US is two orders of magnitude smaller than the amount seqestered by urban trees. Churkina, G., (2012) Carbon cycle of urban ecosystems, in: Lal, R., Augustin, B. (Eds.), Carbon Sequestration in Urban Ecosystems. Springer, New York, pp. 315-330. The FAQ are also bound to a very tight word limit.	Miguel Angel Sanjuán	IECA	Spain
4559	91	6	91	6	Add FAQ 8.4 ...How to accommodate too diversified local factors in calculating Demand / Emissions	Rejected. We are limited in the number of FAQs we can include	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India
4561	91	6	91	6	Add FAQ 8.5 ... Handling of Urban mitigation finance and Urban Adaptation Finance , differently by all authorities	Rejected. We are limited in the number of FAQs we can include	Alka Bharat	Maulana Azad National Institute of Technology (An Institute of National importance), Bhopal	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10391	91	6	91	6	Please, add a new paragraph in FAQ 8.2: "In addition, 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). 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). 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 8.2 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Finally, cities could prescribe the use of concretes made with carbonated recucled aggregates (Sanjuán et al 2020). This is in line with the circular economy and climatic change mitigation context. " Please, add Table 2 from reference Sanjuán et al 2020. CEMBUREAU 2020. https://lowcarboneconomy.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 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	Rejected. The reviewer is correct suggesting that cement uptakes carbon. This uptake is however is negligbly small at a city scale. Amount of carbon captured by concrete infrastructes of the US is two orders of magnitude smaller than the amount seqestered by urban trees. Churkina, G., (2012) Carbon cycle of urban ecosystems, in: Lal, R., Augustin, B. (Eds.), Carbon Sequestration in Urban Ecosystems. Springer, New York, pp. 315-330. The FAQ are also bound to a very tight word limit.	Aniceto Zaragoza	Oficemen	Spain
11547	91	6	91	6	Please, add a new paragraph in FAQ 8.2: "In addition, 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). 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). 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 8.2 shows the maximum amount of carbon dioxide that the different cements can absorb (Sanjuán et al 2020). Finally, cities could prescribe the use of concretes made with carbonated recucled aggregates (Sanjuán et al 2020). This is in line with the circular economy and climatic change mitigation context. " Please, add Table 2 from reference Sanjuán et al 2020. CEMBUREAU 2020. https://lowcarboneconomy.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 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	Rejected. The reviewer is correct suggesting that cement uptakes carbon. This uptake is however is negligbly small at a city scale. Amount of carbon captured by concrete infrastructes of the US is two orders of magnitude smaller than the amount seqestered by urban trees. Churkina, G., (2012) Carbon cycle of urban ecosystems, in: Lal, R., Augustin, B. (Eds.), Carbon Sequestration in Urban Ecosystems. Springer, New York, pp. 315-330. The FAQ are also bound to a very tight word limit.	PEDRO MORA PERIS	UNIVERSITY	Spain
46945	91		92		other FAQs may cover the relationship between mitigation and adaptation and the need for sinergy while avoiding maladaptation.	Rejected. We are limited in the number of FAQs we can include	Valentina Palermo	JRC	Italy
53735	92	15	92	15	The author names are missing. The full reference should be "Aghahosseini, A., D. Bogdanov, and C. Breyer, 2020: Towards sustainable development in the MENA region: Analysing the feasibility of a 100% renewable electricity system in 2030. Energy Strateg. Rev., 28, 100466, https://doi.org/10.1016/j.esr.2020.100466."	Accepted. This was due to a CSL coding error, and will be fixed for the FGD.	ZHENG XINZHU	China University of Petroleum (Beijing)	China
53737	93	23	93	23	The author names are missing. The full reference should be "Bai, X., A. Surveyer, T. Elmqvist, F. W. Gatzweiler, B. Güneralp, et al., 2016: Defining and advancing a systems approach for sustainable cities. Curr. Opin. Environ. Sustain., 23, 69–78, https://doi.org/10.1016/j.cosust.2016.11.010."	Accepted. This was due to a CSL coding error, and will be fixed for the FGD.	ZHENG XINZHU	China University of Petroleum (Beijing)	China
80537	95	14	95	14	Add after L14: Borges, E.C., Paz, I., Leite Neto, A.D., B. Willinger, B., Ichiba, A. , Gires, A. et al. (2020). Evaluation of the spatial variability of ecosystem services and natural capital: the urban land cover change impacts on carbon stocks. Int. J. Sustain. Dev. World .Ecol. doi: 10.1080/13504509.2020.1817810.	Noted. Will only include if this reference is cited in the FGD version of the chapter.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
53739	95				The author names of some references in this page are missing.	Accepted. This was due to a CSL coding error, and will be fixed for the FGD.	ZHENG XINZHU	China University of Petroleum (Beijing)	China
52311	103	12	103	12	A lot of 'submitted' paper are found as references throughout the chapter, which gives the empression of a bias in self-citations by the authors. This page is an example.	Noted. Although the submitted article on this page is not from a chapter author, there are some unpublished works by chapter authors cited throughout - and some from other authors.These will be accepted or fully published by the WGIII release date.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
85603	111	9	111	42	First author name is missing.	Accepted. This was due to a CSL coding error, and will be fixed for the FGD.	San Win	Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation	Myanmar
21953	122	37	122	38	This refers to a book review by Andrew Allan, not to the Newmann et al.' book.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
80539	127	7	127	7	Add after L7: Qiu, Y., Paz, I., Chen, F. Versini, P.A., Schertzer, D., Tchiguirinskaia, I. (2020), Space variability of hydrological responses of Nature-Based Solutions and the resulting uncertainty. Hydrol. Earth Syst. Sci. Discusshttps://doi.org/10.5194/hess-2020-468.	Noted. Will only include if this reference is cited in the FGD version of the chapter.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
80541	130	9	130	9	Add after L9: Sharp R, Tallis HT, Ricketts T, Guerry AD, Wood SA, Chaplin- Kramer R, Nelson E, Ennaanay D, Wolny S, Olwero N, et al. 2016. InVEST 3.2.0 user's guide. Stanford: The Nature Conservancy, and World Wildlife Fund.	Noted. Will only include if this reference is cited in the FGD version of the chapter.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
80543	136	14	136	14	Add after L14: Versini, P.A., Kotelnikova, N., Poulhes, A, Tchiguirinskaia, I., Schertzer, D., Leurent, F. (2018). A distributed modelling approach to assess the use of Blue and Green Infrastructures to fulfil stormwater management requirements. Landscape and Urban Planning, 173, 60–63.	Noted. Will only include if this reference is cited in the FGD version of the chapter.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
80545	136	14	136	14	Add after L14: Versini, P.A., Gires, A., Tchiguirinskaia, I., Schertzer, D. (2020). Fractal analysis of green roof spatial implementation in European cities. Urban Forestry & Urban Greening, 49, 126629https://doi.org/10.1016/j.ufug.2020.126629.	Noted. Will only include if this reference is cited in the FGD version of the chapter.	Daniel Schertzer	Hydrology Meteorology and Complexity, Ecole des Ponts ParisTech	France
29935	144	16	144	18	Please consider adding the following hyperlink (https://www.resourcepanel.org/reports/weight-cities) at the end of the reference to the report by the International Resource Panel, referred to in the list of literature as: Swilling M, Hajer M, Baynes T, Bergesen J, Labbe F, Musango JK, et al. The Weight of Cities: Resource Requirements of Future Urbanization. Nairobi, Kenya: United Nations Environment Programme (UNEP); 2018	Accepted. Will update reference detail in Mendeley - although there is a possibility that, for formatting reasons, the entry appears slightly different in the FGD.	Government of Norway	Norwegian Environment Agency	Norway
30509	145	12	145	18	We propose, could there be an urban response option --- Urban conservation? Thank you.	Taken into account. Protecting and increasing urban carbon sinks is emphasized in the chapter through green and blue infrastructure.	Kum Weng Yong	KW Yong Architect (Professional architect practice)	Malaysia
8173	147	1	166	1	Please consider writing out the dimensions and indicators to enhance the readibility, and delete "plus", "minus", and "plus / minus" as plotting the signs is sufficient.	Accepted.	Joachim Rock	Thuenen-Institute of Forest Ecosystems	Germany
46049	158	1	158	1	In line 1.2. NbS are described as "based in ecomimicry and sustainability innovations". To prevent misunderstandings, it would be helpful to clarify the difference between NbS and nature-inspired technological solutions. Please consider the IUCN definition, which is used throughout the report, quoted in the glossary and which delineates NbS from nature-inspired biomimicry (see Cohen-Shacham et al. 2016, p.6).	Accepted. The use of NbS is updated in the text. Green and blue infrastructure is used whenever relevant.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
60229		13		14	The mitigation action is required through out the big cities in developing countries including asian cities. Therefore, on my opinion the sentence shoul be "Give their significant impact on emissions, mitigation action in developing countries especially in big cities such as Asian cities will have significant implication on global ambitions"	Partially accepted. Revised to 'especially the large and rapidly growing cities'	Government of United Republic of Tanzania	Tanzania Meteorological Authority (TMA)	United Republic of Tanzania
3137					a) the topic of spatial plannning and compact urban form (CUF) deserves greated prominence and coverage in the chapter than it currently has, for its potenti of connecting and integrating successfully multiple mitigation strategies;	Accepted: Have expanded the section to cover a review of relevant literature pertaining to urban form and planning.	Anthony Gad Bigio	George Washington University	United States of America
3139					b) while the chapter states that since AR5 there are more studies covering the link ubetween urban planning and GHG abatement outside the US, and mentic China in particular, the only studies highlighted and compared (table 8.4) are again for the US; please consider bringing forth some evidence from the introduction of spatial planning for CUF from emerging countries;	Accepted: Have included new literature from outside the US.	Anthony Gad Bigio	George Washington University	United States of America
3141					c) the section should also address the potential benefits of CUF in terms of containing sprawl and reducing urban footprint with its negative impacts on rural and natural land-uses; some assumptions as to the quantitative land-use benefits that could be obtained by this mitigation strategy could be reported;	Rejected: SOD p.63 lines 11-26 cover some of the benefits of CUF on land and natural resources	Anthony Gad Bigio	George Washington University	United States of America
3143					d) the section should also address the public and private savings resulting from CUF in terms of urban infrastructure construction, operation and maintenance and related GHG abatement benefits;	Rejected: SOD p. 63 lines 19-26, and 64, 1-7 cover some of the potential private and public savings from infrastructure.	Anthony Gad Bigio	George Washington University	United States of America
3145					e) the section should address as well as the positive impact of CUF on reducing household average dwelling sizes with cascading effects on reducing building materials, energy, water consumption and related GHG abatement benefits;	Noted.	Anthony Gad Bigio	George Washington University	United States of America
3147					f) finally, the section should touch upon the linkage between GHG emissions inventories and CUF, and point out how public policies of urban densification and CUF-seeking urban planning will not emerge from conventional inventories that apportion urban GHG emissions by source (energy, transport, etc.) unless the is a deliberate and upfront understanding of the link between urban form and emissions.	Noted.	Anthony Gad Bigio	George Washington University	United States of America
7917					The report is a well-balanced presentation of challenges and opportiuunities, elements of strenghts and weaknesses/risks. It is well-written, easy to read with a good mix of text and figures, and quite comprehensive. A few more detailed comments below.	Noted	Rocco De Miglio	Energy analyst and modeller	Italy
7919					Most of the charts/figures are not high quality and make the reading experience more difficult. Since visuals often include interesting/important information, would suggest to improve the quality of the figures. See for instance page 32, 40, 53, 86, etc.	Accepted. We had issues aquiring high-resolutions versions of some figures ahead SOD submission, and will be working with graphic designers to reproduce many of these FGD.	Rocco De Miglio	Energy analyst and modeller	Italy
16461					8.3.1.1 Informal settlements	Noted	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
17253					It is possible to achieve each of these objectives by applying specific tools in each of them, which are durability, adaptability and waste reduction.	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17255					In the report, target groups are organized into 7 blocks: users, managers, and owners; design teams (architects and engineers); contractors and builders; manufacturers of construction products; demolition equipment; investors, developers and insurance providers; and finally, governments/regulators/local authorities.	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17257					Durability, adaptability and reduction of waste are the main objectives for achieving sustainable and circular building.	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17259					Structural elements should last as long as the building, whenever possible. If this is not possible due to intrinsic obsolescence, they should be reusable, recyclable or removable.	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17261					Adaptability prevents premature demolition of buildings, thus developing a new design culture. On the other hand, to reduce waste, the design of products and systems will be necessary so that they can be easily reused, repaired, recycled or recovered. Minimizing financial costs through appropriate tools promotes adaptability as well as ease of maintenance, repair or monitoring. Tools such as BIM and building passports can facilitate the transfer of information, as well as the creation of a guide to the use of the building and its equipment. The maintenance, repair or monitoring of buildings will be key to achieving the circularity the sector.	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17263					https://www.construible.es/biblioteca/informe-circular-economy-principles-building-designcomision-europea	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17267					https://www.elsoldigital.es/costes-sociales-en-el-denominado-cambio-climatico-carlos-ramirez-doctor-en-derecho-ambiental-revisor-experto-de-la-onu-20202022-grupo-de-trabajo-iii-de-evaluacion-del-ippc-al-sexto-informe-de/	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17269					https://www.elsoldigital.es/costes-y-oportunidades-en-el-denominado-cambio-climatico-carlos-ramirez-sanchez-maroto-doctor-en-derecho-y-sociedad-revisor-experto-de-la-onu-20202022-grupo-de-trabajo-iii-de-evaluacion-del-ipp/	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17271					https://www.elsoldigital.es/el-agua-como-motor-economico-carlos-ramirez-sanchez-maroto-abogado/	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17273					https://www.elsoldigital.es/economia-circular-y-transicion-ecologica-carlos-ramirez-abogado/	Reject. Self citation	carlos ramirez	AFA-ANDALUCIA	Spain
17279					Measures approved by the European Commission should be promoted The European Commission has published a report entitled 'Circular Economy. Principles for Building Design', with the aim of informing and supporting actors in the value chain of the construction sector, and offering multiple solutions that could increase durability, adaptability and reduction of waste in the construction sector. The document contains a wealth of knowledge and information about the principles of circular building design. The purpose of this document is to present a set of principles for the sustainable design of buildings with the aim of generating less construction and demolition waste, as well as facilitating the reuse and recycling of building materials, products and building elements, and to help reduce the environmental impact and life cycle costs of buildings.	The suggested reference relates directly to circular economy principles for sustainable buildings. Chapter 9 on Buildings has a dedicated section (9.5.2.4) on circular economy. Referral is inserted.	carlos ramirez	AFA-ANDALUCIA	Spain
19653					The reference about urban changes during the transition period it is important in this Chapter.	Noted	Mónica Rodrigues	University of Coimbra, Portugal	Portugal
19655					I would also suggest that the Introduction be extended to include urban climate change adaptation, and in urban areas specifically as these are sites where climate change will affect populations greatly.	Noted	Mónica Rodrigues	University of Coimbra, Portugal	Portugal
43201					One point that is not addressed in this chapter and should be included is the following. An important principle in waste management is to manage and treat waste as close to the point of generation as possible (the "proximity principle"). This minimizes transportation-related emissions as well as traffic congestion and associated ills, such as air pollution (Eisted et al., 2009). Decentralized waste management can also reinforce good source separation behavior, as the resulting benefits are more visible. References: Eisted, R., Larsen, A. W., & Christensen, T. H. (2009). Collection, transfer and transport of waste: accounting of greenhouse gases and global warming contribution. Waste Management & Research, 27(8), 738–745. https://doi.org/10.1177/0734242X09347796; Barton, J. R., Issaias, I., & Stentiford, E. I. (2008). Carbon – Making the right choice for waste management in developing countries. Waste Management, 28(4), 690–698. https://doi.org/10.1016/j.wasman.2007.09.033; Hoornweg, D., & Bhada-Tata, P. (2012). What a Waste: A Global Review of Solid Waste Management. Washington, DC, USA: World Bank Group.; Linzner, R., & Lange, U. (2013). Role and size of informal sector in waste management – a review. Proceedings of th Institution of Civil Engineers - Waste and Resource Management, 166(2), 69–83https://doi.org/10.1680/warm.12.00012	Accepted	Mariel Vilella	Zero Waste Europe/University of Manchester	United Kingdom (of Great Britain and Northern Ireland)
56229					Household energy was not highlighted in any way outside of Chapter 9, and in fact was mentioned just once in passing in Chapter 8 (page 8-60, lines 23-25): "While electric stoves are often the most expensive cooking option in developing countries (World Bank Group, 2014), in some countries, such as Ecuador, their use is growing, especially in urban areas (Gould et al., 2018)." Household energy emissions are a significant contributor to ambient air pollution, and reducing GHG emissions along with ambient air pollution was mentioned as a Climate Change/Health co-benefit in Chapter 8. Chapter 8 also mentions deforestation in and around cities and reforestation opportunities, but deforestation from wood use and both charcoal use and charcoal making (especially in African and Asian cities) was not mentioned. Finally, 40% of the people on the planet continue to cook their food, and heat and light their homes, with polluting fuels that emit CO2 as well as SLCPs. One would have thought that the sector would garner a section in the report. One would have expected household energy to be highlighted with a discussion of HHE as a significant GHG emitter as well as some potential paths to reduce these emissions. In particular, in Chapter 8, recommend that a section on HHE be added to Section 8.2, perhaps in Section 8.2.1 (Sustainable Development).	Taken into account. Emissions related to household energy use is relevant while the focus of this chapter is beyond the building sector. Building level technologies although cross-cutting based on their use also in urban areas is addressed in Chapter 9 on Buildings. The linkages of cleaner cook-stoves with the SDGs (e.g. Table 9.5) is also emphasized. Only referral is provided to maintain focus on urban level mitigation.	Government of United States of America	U.S. Department of State	United States of America
56231					Currently, the Executive Summary is not fully aligned with the main body of the text.	Noted. We have edited the chapter text accordingly.	Government of United States of America	U.S. Department of State	United States of America
56233					Shouldn't there be a deeper discussion on rural-to-urban migration in this chapter? It was mentioned in some of the previous chapters, but this seems to be where the bulk of this discussion should go.	Noted. We have added additional text on migration, but the bulk of the chapter is focused on what cities can do now, not about how to address migration to cities.	Government of United States of America	U.S. Department of State	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
56235					Overall, many sections are largely theoretical / technical in nature, with little content that focuses on detailed, practical, action-based recommendations.	Accepted. We have edited the text considerably to reduce the theoretical aspects.	Government of United States of America	U.S. Department of State	United States of America
56237					There is a length issue; although some sections are clear and read well.	Noted	Government of United States of America	U.S. Department of State	United States of America
56239					There is no mention of exclusion in this chapter. Emerging research on "green" interventions show how the urban poor can be excluded at various stages of the implementation process. See Anguelovski et al., 2017: Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South.	Noted	Government of United States of America	U.S. Department of State	United States of America