INTERGOVERNMENTAL PANEL ON climate change

Our ref.: 5313-18/IPCC/SR15

To designated IPCC Focal Points and
Ministries of Foreign Affairs (MFAs)
(if no focal point has been designated)

COPY

Geneva, 22 October 2018

Sir/Madam,

I wish to address you on a matter of some corrections required for the Summary for Policymakers (SPM) of the IPCC Special Report on Global Warming of 1.5°C (SR15), identified by the authors of the report after approval and acceptance at the 1st Joint Session of Working Groups I, II and III and the 48th Session of the IPCC in Incheon, October 2018.

The corrections, required before the publication of the SPM are listed in Annex A to this letter.

These changes are due to final double-checking of the internal consistency of the numbers provided in the SPM and the underlying scenario ensemble. In particular, the corrections to emissions numbers in the table in Figure SPM.3b are implemented that the emissions ranges are fully consistent with the pathways shown in Figure SPM.3a. Updates to other values are because of rounding. The corrected values in Figure SPM.3b are now fully consistent and transparently reproducible by the notebooks that accompany the SR1.5 scenario database.

Bullet C2.5:

The decision was to report in the SPM only on 1.5°C pathways that have limited or no overshoot. The ranges for land areas in C2.5, however, contain also pathways with higher overshoot. So the new ranges exclude those and include all 1.5°C pathways that qualify as having limited or no overshoot. If we went back to the previous ranges, we would have to change the language saying that we look at low or no overshoot pathways. That would then be inconsistent with the rest of the SPM, where we exclude high overshoot pathways.

Bullet C2.6:

1. The unit that was used (2015USD) is different from the underlying chapter (2010USD).
2. The underlying data that was forwarded late in the night to respond to delegations' comments was unfortunately not fully up-to-date.
3. To be consistent with the underlying report the reporting period should be changed from 2015-2050 to 2016-2050 (in principle both are correct, since the reporting period starts in 31 December 2015 or 1 January 2016).
4. There is also a suggestion for some small editorial changes to avoid confusion/mis-interpretation.

In Annex A to this letter, green highlights indicate where an update is needed, yellow marks the corrected values and text.

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WMO UNEP

Appendix A to the Principles Governing IPCC Work, Annex 3, *IPCC Protocol for addressing possible errors in IPCC Assessment Reports, Synthesis Reports, Special Reports and Methodology Reports* (referred to below as "Error Protocol") lays down the procedures to address errors in the SPM of a Special Report (see Error Protocol Section 2, Step 5A). If Co-chairs and relevant drafting authors agree that there is an error they inform the WG Bureau and seek the endorsement of the proposed corrections. This step has been concluded with the endorsement by the Working Group I, II and III Bureaux on Monday 22nd October 2018.

The Error Protocol further stipulates: "*Following WG or TF Bureau approval, the proposed erratum is submitted to the Panel for approval. To allow for rapid response**,** the Panel may delegate this approval step to the Executive Committee, which can decide that the erratum be posted on the IPCC and WG or TF websites and that the claimant be informed, or can decide to defer to the next session of the IPCC Bureau or of the Panel."*

As you are aware, there is very high interest and demand for the SR15 SPM, which is already widely consulted and downloaded in its electronic format. The SPM booklet is ready for publication and distribution at the upcoming UNFCCC COP 24. The immediate correction of the errors described above is highly desirable so that the SPM is fully consistent with the underlying report. As stipulated by the Error Protocol, we suggest to use the option foreseen for rapid response to submit the corrigendum, as constructed by the Working Group I, II and III Co-Chairs and drafting authors, and approved by the Working Group I, II and III Bureaux, to the IPCC Executive Committee for approval at its next meeting, scheduled on 26 October 2018.

The SPM in its final form including copy-edits and the correction of these errors would be made available in advance of UNFCCC COP 24 for download from the IPCC web site together with a notice in the form of an erratum stating that the errors have been corrected.

I sincerely hope that you agree with the proposed way forward, which will enable us to distribute a fully accurate version of the SR15 SPM. Unless we hear any objections by **Friday 26 October 2018, 10:00 a.m.** Geneva time, we will proceed as suggested.

A copy of this letter is being sent for information to the Ministry of Foreign Affairs and to the Permanent Representatives from your country to the World Meteorological Organization and to the United Nations Environment Programme.

Yours sincerely,

(Abdalah Mokssit)
Secretary of the IPCC

Annex A: Corrections to SR15 SPM

<table>
<tr><td colspan="2">P18 – Section C1. – line 4: 20% should be changed to 25%</td></tr>
<tr><td colspan="2">P18 – Section C1. – line 5: 2075 should be changed to 2070</td></tr>
<tr><td colspan="2">P21 – C2.3 – Replace “75” with “65”</td></tr>
<tr><td>Approved Bullet:
C2.5. Transitions in global and regional land use are found in all pathways limiting global warming to 1.5°C with no or limited overshoot, but their scale depends on the pursued mitigation portfolio. Model pathways that limit global warming to 1.5°C with no or limited overshoot project the conversion of 0.5–8 million km2 of pasture and 0–5 million km2 of non-pasture agricultural land for food and feed crops into 1–7 million km2 for energy crops and a 1 million km2 reduction to 10 million km2 increase in forests by 2050 relative to 2010 (medium confidence). Land-use transitions of similar magnitude can be observed in modelled 2°C pathways (medium confidence). Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services (high confidence). Mitigation options limiting the demand for land include sustainable intensification of land-use practices, ecosystem restoration and changes towards less resource-intensive diets (high confidence). The implementation of land-based mitigation options would require overcoming socio-economic, institutional, technological, financing and environmental barriers that differ across regions (high confidence). {2.4.4, Figure 2.24, 4.3.2, 4.5.2, Cross-Chapter Box 7 in Chapter 3}</td><td>Corrected Bullet:
C2.5. Transitions in global and regional land use are found in all pathways limiting global warming to 1.5°C with no or limited overshoot, but their scale depends on the pursued mitigation portfolio. Model pathways that limit global warming to 1.5°C with no or limited overshoot project a 0.5-11 million km^2 reduction of pasture land, a 4 million km^2 reduction to a 2.5 million km^2 increase of non-pasture agricultural land for food and feed crops, a 0-6 million km^2 increase of agricultural land for energy crops and a 2 million km^2 reduction to 9.5 million km^2 increase in forests by 2050 relative to 2010 (medium confidence). Land use transitions of similar magnitude can be observed in modelled 2°C pathways (medium confidence). Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services (high confidence). Mitigation options limiting the demand for land include sustainable intensification of land-use practices, ecosystem restoration and changes towards less resource-intensive diets (high confidence). The implementation of land-based mitigation options would require overcoming socio-economic, institutional, technological, financing and environmental barriers that differ across regions (high confidence). {2.4.4, Figure 2.24, 4.3.2, 4.3.7, 4.5.2, Cross-Chapter Box 7 in Chapter 3}</td></tr>
<tr><td>Approved Bullet:
C2.6 Total annual average energy-related mitigation investment for the period 2015 to 2050 in pathways limiting warming to 1.5°C is estimated to be around 900 billion USD2015 (range of 180 billion to 1800 billion USD2015 across six models[17]). This corresponds to total annual average energy supply investments of 1600 to 3800 billion USD2015 and total annual average energy demand investments of 700 to 1000 billion USD2015 for the period 2015 to 2050, and an increase in total energy-related</td><td>Corrected Bullet:
C2.6 Additional annual average energy-related investments for the period 2016 to 2050 in pathways limiting warming to 1.5°C compared to pathways without new climate policies beyond those in place today are estimated to be around 830 billion USD2010 (range of 150 billion to 1700 billion USD2010 across six models[17]). This compares to total annual average energy supply investments in 1.5°C pathways of 1460 to 3510 billion USD2010 and total annual average energy demand</td></tr>
</table>

investments of about 12% (range of 3% to 23%) in 1.5°C pathways relative to 2°C pathways. Average annual investment in low-carbon energy technologies and energy efficiency are upscaled by roughly a factor of five (range of factor of 4 to 5) by 2050 compared to 2015 (medium confidence). {2.5.2, Box 4.8, Figure 2.27}	*investments of 640 to 910 billion USD2010 for the period 2016 to 2050. Total energy-related investments increase by about 12% (range of 3% to 24%) in 1.5°C pathways relative to 2°C pathways. Annual investments in low-carbon energy technologies and energy efficiency are upscaled by roughly a factor of six (range of factor of 4 to 10) by 2050 compared to 2015 (medium confidence). {2.5.2, Box 4.8, Figure 2.27}*
P20 – Figure SPM3b – Row "CO2 emission change in 2030 (% rel to 2010)" – last column: replace "-59" with "-58"	
P20 – Figure SPM3b – Row "in 2050 (%)" below "CO2 emission change in 2030 (% rel to 2010)" – last column: replace "(-104, -91)" with "(-107, -94)"	
P20 – Figure SPM3b – Row "Kyoto-GHG emissions* in 2030 (% rel to 2010)" – last column: replace "(-55, -38)" with "(-51, -39)"	
P20 – Figure SPM3b – Row "in 2050 (%)" below "Renewable share in electricity in 2030 (%)" – last column: replace "87" with "86"	
P20 – Figure SPM3b – Row "from non-biomass renewables in 2030 (% rel to 2010)" – last column: replace "(243, 438)" with "(245, 436)"	
P20 – Figure SPM3b – Row "in 2050 (%)" below "from non-biomass renewables in 2030 (% rel to 2010)" – first column for P1: replace "832" with "833"	
P20 – Figure SPM3b – Row "in 2050 (%)" below "from non-biomass renewables in 2030 (% rel to 2010)" – last column: replace "(575, 1300)" with "(576, 1299)"	
P20 – Figure SPM3b – Row "in 2050 (%)" below "Agricultural CH4 emissions in 2030 (% rel to 2010)" – last column: replace "(-46, -23)" with "(-47, -24)"	
P20 – Figure SPM3b – Row "Agricultural N2O emissions in 2030 (% rel to 2010)" – last column: replace "4" with "3"	