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SIXTH ASSESSMENT REPORT (AR6) PRODUCTS

Workshop on Climate Change and Cities

(Submitted by the Secretary of the IPCC)

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SIXTH ASSESSMENT REPORT (AR6) PRODUCTS

Workshop on Climate Change and Cities

In paragraph 7 of Decision IPCC/XLIII-6 on the "Sixth Assessment Report (AR6) Products" the IPCC decides "to consider working with academia, urban practitioners, and relevant scientific bodies and agencies, to organize an international scientific conference on climate change and cities early in the AR6 cycle, in order to stimulate scientific reports and peer reviewed publications on this subject".

Table 2 of Decision IPCC/XLIII-1 on the IPCC Programme and Budget, regarding the forecast 2017 budget noted by IPCC-XLIII, includes a budget line on "Workshop on Cities" allowing for 100 journeys, CHF 400,000.

Rule 7.2 in Appendix A to the Principles Governing IPCC Work regarding Co-sponsored Workshops and expert Meetings establishes, inter alia, that "IPCC co-sponsorship may be extended to other Workshops or Expert Meetings if the IPCC chair, as well as the Co-Chairs of the relevant Working Group/Task Force Bureau determine in advance that the activity will be useful to the work of the IPCC". IPCC co-sponsorship of such an activity does not convey any obligation by the IPCC to provide financial or other supports. In considering whether to extend IPCC co-sponsorship, the following factors should be taken into account:

- Whether full funding for the activity will be available from sources other than the IPCC;
- Whether the activity will be open to government experts as well as experts from nongovernmental organizations participating in the work of the IPCC;
- Whether provision will be made for participation of experts from developing countries and countries with economies in transition;
- Whether the proceedings will be published and made available to the IPCC in a time frame relevant to its work;
- Whether the proceedings will:
 - Include a full list of participants;
 - Indicate when and by whom they were prepared;
 - Indicate whether and by whom they were reviewed prior to publication;
 - Specify all sources of funding and other support;
 - Prominently display the following disclaimer at the beginning of the document:

"IPCC co-sponsorship does not imply IPCC endorsement or approval of these proceedings or any recommendations or conclusions contained herein. Neither the papers presented at the Workshop/Expert Meeting nor the report of its proceedings have been subjected to IPCC review."

The proposal for an International Conference on Climate Change and Cities contained in Annex 1 has been prepared by a number of partnering organizations [Cities Alliance, C-40, ICLEI-Local Governments for Sustainability, Future Earth, Sustainable Development Solutions Network (SDSN), United Cities and Local Governments (UCLG), UN-Habitat, the United Nations Environment Programme (UNEP) and the World Climate Research Programme (WCRP)] in consultation with the Co-Chair of Working Group II.

The proposed International Conference on Climate Change and Cities should be considered as a co-sponsored workshop as defined in article 7.2 of Rule 7.2 in Appendix A to the Principles Governing IPCC Work regarding Co-sponsored Workshops and Expert Meetings.

The proposal was considered and endorsed by the IPCC Executive Committee after discussion at its 44th meeting on 7 September 2016.

The Panel is invited to consider this proposal and confirm the budget line mentioned above for co-sponsored conference.

Proposal for an International Conference on Climate Change and Cities

(Prepared by Working Group II Co-Chair in Consultation with Partnering Organizations)

1. Background

At the 43rd Session of the Intergovernmental Panel on Climate Change (IPCC) in Nairobi from 11-13 April 2016, the Panel agreed (Decision (IPCC/XLIII-6) “to consider working with academia, urban practitioners, and relevant scientific bodies and agencies, to organize an international scientific conference on climate change and cities early in the Sixth Assessment Report (AR6) cycle, in order to stimulate scientific reports and peer reviewed publications on this subject”.

This proposal from Cities Alliance, C-40, ICLEI-Local Governments for Sustainability, Future Earth, Sustainable Development Solutions Network (SDSN), United Cities and Local Governments (UCLG), UN-Habitat, the United Nations Environment Programme (UNEP) and the World Climate Research Programme (WCRP) is in response to this decision of the IPCC and suggests an international scientific conference to be co-organized by Cities Alliance, C-40, ICLEI-Local Governments for Sustainability, Future Earth, SDSN, UCLG, UN-Habitat, UNEP and WCRP and co-sponsored by IPCC. The scientific conference is planned for early 2018 and will bring together representatives from academia, scientific bodies and agencies; concerned member states of the United Nations; city and regional governments; and urban and climate change practitioners. The main aim is to stimulate scientific research (including peer review publications) around cities and climate change and to provide inputs to the IPCC products of the sixth assessment cycle (AR6) and to establish the foundation for the Special Report (SR) on cities and climate change that will be undertaken during the seventh assessment cycle (AR7).

2. Objectives

The overall objectives of the 2018 international scientific Conference on Climate Change and Cities are to: identify key research and knowledge gaps with regard to cities and climate change; inspire global and regional research that will lead to peer-reviewed publications and scientific reports; and stimulate research in Cities and Climate Change over the AR6 cycle.

The specific aims of the conference are to:

- i. Take stock of the scientific literature, data and other sources of knowledge that have emerged around cities and climate change since the close of the Fifth Assessment Report (AR5) (i.e. March-October 2013¹) and build on ongoing work as part of the AR6 cycle.
- ii. Identify key gaps in the scientific literature, in keeping with the emphasis that arises from the scoping of the AR6 and its three Special Reports (SRs) and international, regional and national policy and implementation imperatives that emerge from 21st Session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC), the Sustainable Development Goals (SDGs) and the New Urban Agenda.
- iii. Identify key research and knowledge gaps, with the aim of stimulating new research, the findings of which to be assessed in AR7’s Special Report on Climate Change and Cities ².

¹ The IPCC AR5 reports were based on publications accepted for publication before the following dates: WG I: 15 March 2013; WG II: 31 August 2013 and WG III: 3 October 2013

² Decision IPCC/XLIII-6 # 6 “AR7 cycle will include a Special Report on climate change and cities.”

- iv. Develop novel assessment frameworks that take into account the systemic linkages, synergies and trade-offs between urban systems and climate change, especially action at the local scale.
- v. Identify the research gaps in terms of policy and implementation in order to facilitate the consideration of such areas in anticipation of the Special Report on Climate Change and Cities.
- vi. Bring together key urban and climate change stakeholders³ to identify priorities for scientific and policy research during the AR6 cycle and to stimulate the co-design and co-production of actionable knowledge.
- vii. Building on established United Nations, member state and research network initiatives, help define appropriate global, regional and local monitoring systems and data architectures, including quality control, to facilitate scientific research and to help inform evidence-based policy development on climate change and cities.
- viii. Establish a partnership-based platform to systematically accumulate, assess, analyze and disseminate information on science-policy-practice linkages that enable an upscaling and mainstreaming of urban climate actions at all scales.

3. Outcomes

The expected outcomes of the conference include:

1. A report of the meeting will be prepared under the guidance of the Scientific Steering Committee with inputs from meeting participants. This report will provide a summary of the meeting discussions. These proceedings will:
 - Include a full list of participants;
 - Indicate when and by whom they were prepared;
 - Indicate whether and by whom they were reviewed prior to publication;
 - Specify all sources of funding and other support; and
 - Prominently display the following disclaimer at the beginning of the document:

“IPCC co-sponsorship does not imply IPCC endorsement or approval of these proceedings or any recommendations or conclusions contained herein. Neither the papers presented at the Workshop nor the report of its proceedings have been subject to IPCC review”.
2. Scientific Proceedings and commissioned background papers to inform discussions at the conference.
3. A paper on key short to mid-term research themes during the AR6 cycle and opportunities to support these.
4. A proposal on appropriate global, regional and local monitoring and data architecture to assist in scientific research and inform evidence-based policy development on climate change and cities.
5. A proposal to build a partnership-based platform to systematically accumulate, assess, analyze and disseminate information that enables upscaling and mainstreaming of urban climate actions at all scales.

³ This includes UN member states, representatives of city and regional governments, UN and international organizations, representatives of the scientific community, universities and think tanks, urban and climate practitioners; organizations of the urban poor, development partners and donor institutions.

4. Scientific Background

Cities account for over 70% of global fossil fuel CO₂ emissions (Seto et al., 2014) and are vulnerable hotspots of climate impact (Revi et al., 2014). The scale of ongoing urban expansion (and associated infrastructure and buildings that are yet to be built) provide a unique opportunity for cities to "bend the curve" to avoid dangerous climate change. Cities and regions may also be powerhouses of ambitious mitigation and adaptation measures that are hard to legislate and implement at national level. Hence, cities could play an important role in safeguarding our collective human future.

Recognizing the importance of cities in both mitigating and adapting to climate change, the IPCC's Fifth Assessment Report (AR5) included a chapter on urban adaptation to climate change (Ch. 8 of WG II - Revi et al., 2014) and a new chapter on the role for spatial planning and urban areas in mitigating climate change (Ch. 12 of WG III - Seto et al., 2014). In spite of special efforts to build an integrated assessment framework, via an indicative set of consultations between Working Groups II and III in a special convening (Kolkata, India 2013), the discussion of adaptation and mitigation for cities was not integrated. Moreover, the WG I report did not cover the expanding field of physical science observations, process studies and modeling knowledge on urban climate, including the interplay with energy and vegetation, and local sea level aspects that are important for coastal cities. There are, thus, many important unanswered questions in the AR5, and it is crucial to mobilize the scientific community to build on these earlier initiatives and to address these gaps during the AR6 cycle.

This conference aims to take stock of post-AR5 scientific work on cities and climate change (at the level of research, policy and practice); and define a set of key research themes and questions that can be addressed in advance of the IPCC's AR7 Special Report on Climate change and Cities. To do this, it will: build on the momentum of AR5 and interrogate the issues that were limited in their coverage by the availability of literature; mobilise and bring together a diverse set of stakeholders, starting with the global scientific community, United Nations member states, local and regional governments, the practitioner and other communities in order to help inform AR6 products and the AR7 Special Report on Climate Change and Cities.

To make maximum progress on these objectives, it is proposed the conference is co-organized by the UN-Habitat, UNEP, the global urban community represented by Cities Alliance, C-40, ICLEI-Local Governments for Sustainability, UCLG and SDSN (to ensure policy relevance) and Future Earth and WCRP (representing the research community) and co-sponsored by IPCC. This will create synergies with the three agreed intergovernmental processes: the SDGs, Sendai Framework for Disaster Risk Reduction and Habitat III and will facilitate engagement with Future Earth's emerging research agenda on cities and sustainable urbanization currently being built around a growing international network of over 50,000 researchers.

5. Scientific Grounding and Open Research Questions

The AR5 identified critical gaps in the literature and knowledge on cities and climate change. A review of subsequent publications outlines a range of areas that need to be addressed as described below.

1) Systemic understanding and approach to cities

The scientific study of the urban spans many different fields and traditions. There is also no sole body of scientific knowledge on urban mitigation and adaptation. Rather, multiple lenses have been used in various studies on urban climate change to reflect diverse disciplinary perspectives e.g. from planning, technology, industrial ecology, economics, urban climate including air quality, and disaster studies. These diverse framings have led to a diversity of implementation pathways and solution spaces, creating a growing but fragmented mainstream scientific literature on cities and

climate change. Addressing the consequent structural gaps as identified in the AR5 assessment and beyond is the focus of this proposal.

Firstly, most current assessment frameworks are sector focused, without sufficient exploration of interlinkages that are central to the dynamics of urban systems, and hence, to effective and appropriate impact and implementation pathways. This has made a scientific assessment of the synergies and trade-offs amongst different urban sectors and planning and management actions difficult to undertake. Urban mitigation and adaptation processes are also multi-scalar, typically crossing local, regional and national scales. Insufficient acknowledgement of this multi-scalar dimension could lead to missed opportunities in delivering systemic urban outcomes, in leveraging co-benefits, and in effectively addressing cross-sectoral trade-offs.

Secondly, urban mitigation and adaptation are currently typically addressed in silos. Effective urban climate adaptation and mitigation needs better knowledge integration. Many cities that have attempted to implement siloed strategies (that look positive on paper) have not been very effective in terms of mitigation, and in some cases have led to mal-adaptation. Much more rigorous scientific enquiry regarding the linkage between urban adaptation and mitigation is indicated, including a better understanding of the limitations to adaptation in particular contexts.

Thirdly, in most cases, Integrated Assessment Models do not incorporate spatiality—a key characteristic of urban areas—or address questions that are relevant to the urban scale. Measures to address this will need to be explored, given the importance of cities to emissions reduction, impact minimization and adaptation measures. As regards scenarios and climate drivers, the role of urbanization and cities in shaping local climate, emissions and air quality, land-use dynamics and extreme events, needs further research. A finer grained understanding of different urban development pathways could help improve the understanding of mitigation options and a clearer understanding of scalable adaptation strategies. The development of innovative approaches to assess greenhouse gas emissions from megacities based on monitoring and atmospheric modeling tools may also contribute to the monitor, report, verify approach (MRV) that is central to the implementation of the Paris Agreement.

Overall, there is a strong need for deeper systems perspectives to understand the complex nexus between cities and climate change. This should include a consideration of urban sub-systems, spatial and temporal scales, sectoral, stakeholder and institutional dynamics and the consequent emergent behaviour. This will assist in creating a better understanding of the boundary conditions linked to deep decarbonisation, transformative adaptation, disaster risk reduction and realizing the SDGs.

2) Urban governance

Some cities have become frontrunners in advanced climate action and are demonstrating the potential to become laboratories and engines of deep decarbonisation and transformative adaptation, while action at national and federal levels faces a range of implementation, legislative and political challenges. Some cities are even starting to inspire national and international action.

Nevertheless, addressing global concerns at city level is challenging, due to the spatial, temporal and institutional mismatches, limitations of financial resources and human and institutional capacities, especially in smaller cities. A vast diversity of city types across size, income and levels of informality has hindered the process of generalisation and theory building, and also hindered the rapid and effective cross-city transfer of knowledge and effective practice. Additional focused research appears to be necessary on factors that enhance innovative urban climate governance practices and the effectiveness of policy and management interventions. In particular, governance and institutional arrangements to enhance systemic urban climate action need further exploration.

The role of multiple non-state urban stakeholders, from individual citizens to informal and formal-sector enterprises and knowledge institutions in mainstreaming climate action is also not well understood. A better understanding of the effectiveness of development and implementation pathways and science-policy-practice interfaces, appear to be important, especially because local and regional governments have limited human and financial capacities to experiment with deep decarbonisation or transformatory adaptation pathways. Currently, much of our understanding about local adaptation and mitigation comes from a few urban case studies that are similar in size (large), income (high) and governance (good). An expansion of the breadth and geographic range of these case studies on emissions, impact pathways, adaptation and mitigation appears necessary. In addition it would be valuable, if they could account for the distribution of the climate action costs, benefits, and risks across age cohorts, socio-economic groups, and geography.

3) New streams of data

The availability and compatibility of urban scale data and information is limited and often not comparable across cities. Relevant datasets from the private sector (e.g. insurance, energy, water, etc) may not be available for integrated analyses. The SDG global and regional monitoring frameworks are attempting to bridge the gap, but focused climate inputs into these processes could make a considerable difference to research quality and policy relevance. There are also substantial gaps to be addressed between place-based and global downscaled research in order to link urban-scale, regional and global assessments. New technology, data and analytical methods that are emerging across the urban space (e.g. big data, deep learning, machine learning, data science, the internet of things (IOT), smart systems, and artificial intelligence) may hold some promise. A better use of these tools and technologies to support urban climate change science seems imperative, but examples of effective use are rare. It is also unclear as to how revolutionary developments in technology and information and communications technology (ICT) (e.g. sharing economy and driverless mobility) in cities influence systems behaviour, emissions and resilience.

4) Transformative change and alternative urban futures

Current urban climate actions are typically fragmented and incremental while the AR5 clearly identified the need for transformative and systemic change. Cities provide such transformative and systemic intervention opportunities in many regions around the world. In this regard, the drivers, patterns and impact of individual and collective behavioural change on emerging urban transformation, new technologies and media need additional attention. While initial attempts have been made in this space, an effective global platform to compile case studies of successful implementation and scaling-up of urban climate actions and good practices is necessary, especially to enable systemic meta-analysis and building up of transferable knowledge.

The economics and financing of urban mitigation and adaptation is another underdeveloped area, and a deeper understanding of effective financial and institutional arrangements, across regions and urban contexts to address urban climate change mitigation and adaptation would be useful. Most urban development decisions are path-dependent with long term implications and lock-ins. Currently climate scenarios and development pathways are challenged in incorporating plausible urban futures e.g. based on low to zero carbon cities. A better understanding of the mitigation and adaptation potentials of diverse urban development pathways would assist integrated assessments, co-benefit and trade-off analyses. Cross-sectoral (e.g. food systems, transport, land use) and sustainable development goal oriented interaction in cities (to address poverty, pollution, better health) are reported to be pivotal for urban climate mitigation and adaptation, but need deeper research. The exploration of granular strategies to avoid negative lock-in effects in urban systems and enabling positive lock-in also need to be much better understood.

6. Partner Organisations

The conference will include contributions from a set of five primary partners. Additional partners may be incorporated at a later stage. Two of partners 1 to 4 will be lead organizer(s) and (co-) chair the SSC:

1. UN-Habitat and UNEP (via Cities Alliance), co-organizers, representing the United Nations system;
2. Future Earth, a co-organizer, representing academia and the scientific community, with a specific focus on cities and transdisciplinarily approaches, together with WCRP as a co-organizer representing the climate research community;
3. Cities Alliance, C-40, ICLEI-Local Governments for Sustainability, UCLG and SDSN, co-organizers, representing city and regional governments, universities and research institutions, the enterprise sector, and a range of member states;
4. A national/city government to serve as host (to be confirmed after an open call to be coordinated by the Global Task Force including C40, ICLEI-Local Governments for Sustainability and UCLG);
5. IPCC through its co-sponsorship.

7. Timing and Duration

The conference is expected to be held early in 2018, synchronised with other ongoing international conferences and IPCC events and consultations around complimentary themes. The conference is expected to last three days, with an opening plenary on the morning of the first day; and a closing plenary on the evening of the third day.

8. Proposed Content and Agenda

Content

The format of the conference will be finalised by the Scientific Steering Committee at its first meeting. An indicative three-day agenda is presented below:

Day 0

- Arrivals
- Scientific Steering Committee meeting

Day 1

- Further arrivals and Registration
- Inauguration and Opening Plenary
- Initial working group discussions
- Welcome dinner by City Mayor

Day 2

- Breakout Group discussions (morning)
- Breakout Group discussions (afternoon)
- Conference banquet

Day 3

- Breakout Group discussions (morning)
- Closing Plenary
- Some Departures

Day 4

- Voluntary city tours
- All departures

9. Conference Participants

The conference is expected to draw between 250-300 participants from across the world, of which over a third will be from developing countries. Developing country participants who do not have institutional support for travel, would be provided travel funding from the IPCC Trust Fund (maximum 100 trips) as already approved by the Panel at its 43rd Session.

10. Scientific Steering Committee, Organizing Committee and Management arrangements

A Scientific Steering Committee (SSC) will manage the conference and its proceedings. SSC members will be drawn from partner organisations and key stakeholder groups and will strive to maintain a balance across regions, gender and scientific themes.

The conference will be administered by an Organizing Committee, including representatives from the IPCC Secretariat and Working Group I, II, and III Technical Support Units, and the Head of the local Conference Secretariat.

11. Timeline

An indicative timeline for the conference is as follows:

1. Submission of conference proposal to partner organisations and IPCC Secretariat (August 2016).
2. Submission to IPCC Executive Committee –ExCom- (September 2016).
3. Submission to the IPCC (October 2016).
4. Confirmation of conference location, dates and partners after a limited call (January 2017).
5. Announcement of the Conference, initiation of Organising Committee and local Secretariat and launch of website (February 2017).
6. First meeting of the Scientific Committee. Commissioning of preparatory papers (March 2017).
7. Call for nomination of participants and initiation of outreach and advocacy activities (June 2017).
8. Second meeting of the Scientific Committee and selection of Participants (August 2017).
9. **International Conference on Climate Change and Cities** (early 2018).
10. Third meeting of the Scientific Committee and clearance of Proceedings for publication (June 2018).
11. Publication of proceedings (September 2018).

12. IPCC Financial Implications

The estimated full cost budget for the conference at USD 3,000 per participant is expected to be roughly USD 1 million.

The IPCC, at its 43rd Session, provided a budget allocation to support the travel for 100 experts from developing countries and countries with economies in transition who are eligible for travel support from the IPCC Trust Fund. Funds for the meeting venue and associated expenses will be raised by the co-organizers and, based on the current number of trips allocated, the IPCC would contribute up to 68,000 CHF to meet these costs.

An amount of USD 0.25 million each have been committed by Cities Alliance and C-40. UN-Habitat has committed USD 0.1 million. (see attached letters of commitment)

In-kind contribution, of the conference venue, local Secretariat and conference banquets of between USD 0.1-0.2 million is expected to be made by the partner government/city.

13. References:

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